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BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., Pres., Wilmington.	W. P. IVEY, M. D.-----Lenoir.
S. WESTRY BATTLE, M. D.----Asheville.	FRANCIS DUFFY, M. D.-----New Bern
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RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	

VOL. XX.

APRIL, 1905.

No. 1.

THE ELECTION OF COUNTY SUPERINTENDENTS OF HEALTH.

According to Section 7 of the act relating to the Board of Health, the meeting "of the county sanitary committee for the election of a county superintendent of health" shall be held "on the first Monday in May, 1901, and every two years thereafter." This means of course that the term of every superintendent expires this May and that his successor must be elected for a term of two years at this meeting. In section 5 of the law cited above "the county sanitary committee shall have the immediate care and responsibility of the health interests of their county." To properly meet such a responsibility it behoves all such committees to select as their executive officers good men. They should also pay such reasonable salary as will justify men of character and knowledge in accepting the office. In arranging the salary question there should be an understanding as to extra pay when the superintendent is called upon to treat smallpox, as the private practice of a physician when in attendance upon smallpox is, for the time being at least, greatly interfered with.

We would thank the secretaries of the sanitary committees to send in promptly the name and address of the superintendents elected.

OUR MILK SUPPLIES.

By the time this issue of the Bulletin reaches our readers warm weather will be upon us and the annual "slaughter of the innocents" will have begun. The chief cause of the fearful death-rate among infants is improper feeding. Cow's milk is the principal article in their dietary. Impure cow's milk is therefore responsible for the

loss, it is probably within reason to say, of thousands of lives in our State every year that could have been saved.

The practical question of course is, How can we secure pure milk? It is not very easy of solution, but much can be done by municipal supervision. Every city and larger town should require each dairy selling milk to its people to take out a license. The issuance of this license should be based upon an observance of such sanitary rules and regulations as would safeguard the purity of the milk furnished, revocation of the license promptly following upon failure to do so. To insure their observance a system of dairy inspection, including frequent tests of the milk, should be instituted. A movement in this line has been started in Raleigh, and it is to be hoped that it will be carried to a successful issue. It is also greatly to be desired that other cities and towns take the matter up promptly and earnestly. As directly pertinent to the subject we take pleasure in printing below an excellent paper on "Prevention of Summer Diseases of Infants," read by Dr. Joseph Graham before the Child's Study Department of the Woman's Club of Raleigh and published in the *News and Observer* of recent date.

PREVENTION OF SUMMER DISEASES OF INFANTS.

BY JOSEPH GRAHAM, M. D.

Milk is the most suitable culture medium for the growth of germs. These germs grow and elaborate poisons in the milk both before and after it is taken into the infant's stomach. This question of impure milk has been given a great deal of deserved attention in this and other countries. The agency of milk in the spread of contagious diseases has only lately been appreciated. Its importance may be judged by the fact that in 1900 Kober collected records of 230 epidemics which were spread by milk—these illustrate very well how the milk most frequently becomes infected. There were 195 outbreaks of typhoid fever, 99 of scarlet fever and 36 of diphtheria. In the typhoid epidemics the disease prevailed at the dairy in 148 instances; in 67 the milk was diluted with infected well water; in 7 the cows probably waded in polluted water; in 24 cases the employees acted as nurses and in 10 they continued at work, although themselves suffering from the disease; in 1 case it was found that the milk cans were washed with cloths used about patients, in 2 cases the dairy employees were connected with the night-soil service.

Of the 99 epidemics of scarlet fever there was disease at the farm or dairy in 68. In the other instances the employees acted as nurses or lodged in infected homes. In 2 epidemics infection was brought by cans or bottles from the homes of patients.

As a result of investigation, every large city in this country has passed rules and regulations for the control of the milk supply. New York's milk supply comes from several different States, yet they have a fairly pure milk supply—for the municipal inspectors of New York are active, and only milk of a certain purity and quality is allowed sale. Therefore the dairymen, although they live in other States, are compelled to provide pure milk, otherwise their milk would fall below the municipal requirements, and would be refused sale. To encourage the use of pure milk, and to decrease the mortality among infants, many thousands of dollars have been donated for the purpose of establishing milk centres, and pure milk is distributed to the poor free of charge. This has been done on a large scale in many American cities, notably Boston, Brooklyn, Buffalo and Rochester, and it has effected a very decided reduction in the death-rate of children.

The milk of Raleigh, so far as I have investigated, is unnecessarily impure. This fact I have learned through sad bed-side experiences and by repeated examination of samples of milk bought in the open market.

Why is our milk supply bad? Because there is no supervision of the milk supplied to our homes. In several instances the owners of our dairies are interested in other business, and leave the management of their dairies more or less to the care of their employees, who are not responsible to any authority, for there is absolutely no supervision or inspection of either the milk or the dairies.

Much of the milk sold in Raleigh is transported from the farm to the city in tin cans, and is measured out to the consumer in a tin quart can. This measuring-pot is not washed from the time it leaves the farm until the wagon returns, and during the entire trip it is placed uncovered by the milk can, where it can receive all the dust and dirt from the street.

I have been told by a driver of a milk delivery wagon that he has an insufficient supply of bottles and that very often he has to use the empty bottles collected on his rounds to supply his next customers. Under such circumstances it would be impossible to deliver anything but dirty milk. Often the farm sends in more milk than is delivered by the wagon—this surplus is carried back to the farm. Who prevents the return of this milk to the market on the following day? I firmly believe that such milk is often sold in Raleigh. At present there is no way of preventing an individual who has been nursing a case of diphtheria, scarlet fever or typhoid fever, or any other infectious disease, from attending to his usual duties of the dairy.

We have no simple means by which we can definitely determine the purity of milk. The fact that milk appears perfectly sweet is not a proof of its purity, for, if the germs are already in it, the harmful changes may take place even after the baby has had its meal; then,

too, some disease-producing germs do not cause souring of the milk, and therefore their presence is not detected.

As it is generally impossible to procure cow's milk sufficiently free from germs, we have to use some measure to destroy the germs already present. The great principle of all sterilizing is, first, the killing of germs present in milk; and second, the preventing of other germs from entering into it later: if both these ends are accomplished the milk will keep sweet for several days. There are two classes of apparatus used to destroy germs: one known as a sterilizer, which sterilizes the milk at a boiling temperature 212 degrees F.; the other called a Pasteurizer, which is really a modified sterilizer, killing the germs at a much lower temperature.

There are certain disadvantages in sterilizing milk—the taste is very considerably changed; such milk is very much more constipating and more difficult of digesting, also it seems to be less nutritious—certainly children do not thrive as well when fed on sterilized milk as when nourished with pure raw cow's milk.

Pasteurization of the milk produces less change in the constituents of milk than sterilization, and as it is sufficiently thorough in the destruction of germs it has become the most popular method of sterilization. Sterilization of milk has certain limitations. Heating milk destroys only living organism; it does not kill spores, nor does it remove toxins or poisons. Before sterilization, milk may already contain the products of bacterial growth in such quantity and of such a character as to render it wholly unfit for food. Even though just sterilized, it may still be poisonous to an infant, for sterilization will not kill the products of bacterial growth—it is therefore very important that sterilization be done at the earliest possible moment. We must always remember that sterilized milk is more difficult of digestion; the only value of sterilization is in preventing disease, first, by enabling us to feed infants upon milk in which no considerable fermentative changes have taken place; and second, by destroying disease-producing germs with which the milk may have become accidentally contaminated.

It would be far more desirable to use pure milk, but this result will not be secured until the public is educated to appreciate and dealers to produce a better and a cleaner milk; also it will be necessary to give the health authorities of the city greater power than heretofore in the matter of milk inspection.

The above facts are gleaned from observation in my own practice and from study of the works of others who have given this matter serious consideration.

REVIEW OF DISEASES FOR MARCH, 1905.**EIGHTY-ONE COUNTIES REPORTING.**

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of March the following diseases have been reported from the counties named.

MEASLES.—Alamance, in all parts; Anson, 7 cases; Bertie, in all parts; Bladen, a few; Brunswick, several; Cabarrus, 10; Camden, 15; Carteret; Chatham; Chowan, epidemic; Clay, several; Craven; Davidson; Duplin, 10; Durham, a few; Edgecombe, a few; Franklin, in all parts; Gates, 11; Graham, several; Guilford, many; Halifax, 1; Hertford, 5; Jackson, 2; Madison, in all parts; Martin, many; Mecklenburg; New Hanover, 28; Onslow, 20; Orange, many; Pender, a few; Person, in all parts; Pitt, 1; Randolph, 1; Richmond, 90; Robeson, several; Rockingham; Sampson; Union, 20; Vance, in all parts; Wake, epidemic; Warren, a few; Washington, 12—42 counties.

WOOING-COUGH.—Cabarrus, 40; Chatham; Clay, several; Dare, 7; Durham, a few; Edgecombe, 1; Guilford, many; Madison, in all parts; Martin, many; Mecklenburg; Mitchell; Nash; Onslow, 10; Richmond, 15; Rutherford, many; Transylvania, several; Wake, epidemic; Yadkin, many; Yancey—19 counties.

SCARLATINA.—Bladen, a few; Mecklenburg; New Hanover, 1; Northampton, 4; Rockingham.

DIPHTHERIA.—Bladen, 1; Caldwell, 1; Davie, 1; Edgecombe, 1; Granville, 1; Guilford, 2; New Hanover, 2; Pitt, 1; Union, 2; Wake, 1—10 counties.

TYPHOID FEVER.—Beaufort, 1; Caldwell, 16; Chatham; Dare, 3; Jackson, 2; New Hanover, 2; Onslow, 1; Pitt, 1; Randolph, 3 or 4; Robeson, a few; Stanly, 2; Union, 10; Wake, 2; Wayne, 1—11 counties.

MALARIAL FEVER.—Brunswick; Gates; Halifax; Pender.

BOWEL DISEASES.—Currituck, a few.

INFLUENZA.—Alleghany, general; Catawba, general; Cumberland, general; Currituck; Davie, general; Gates, general; Hertford, general; Hyde, general; Lincoln; Martin; Onslow, general; Randolph; Richmond; Scotland; Washington, general; Wilkes; Yadkin—17 counties.

PNEUMONIA.—Alamance, 10; Alleghany, in all parts; Bladen, 1; Cabarrus, 7; Cumberland, in all parts; Davidson; Duplin, 4; Green, 6; Hyde, in all parts; Jackson, 4; Martin, in all parts; Mecklenburg; New Hanover, 4; Pender, a few; Person; Randolph; Sampson, many; Transylvania, a few; Wake, 25; Warren, a few; Wayne, several; Wilson; Yadkin, a few—23 counties.

MUMPS.—Guilford, a few; Sampson, epidemic; Surry.

SMALLPOX.—Alamance, 1; Anson, 7; Beaufort, 5; Bladen, 5; Brunswick, several; Buncombe, 2; Caldwell, 1; Carteret, 12 to 15; Chowan, 22; Cleveland, 7; Craven, 3; Cumberland, 4; Currituck, several; Davie, 15; Duplin, 17; Durham, 10; Edgecombe, 14; Franklin, 15; Gaston, 10; Gates, 20; Green, 2; Guilford, 8; Halifax, 16; Henderson, 1; Hertford, 1; Mecklenburg, 18; Nash, 3; New Hanover, 47; Northampton, 15; Pasquotank, 3; Perquimans, 10; Person, 7; Pitt, 3; Randolph, 12; Richmond, 25; Robeson, 2; Rockingham, 6; Scotland, a few; Stanly, 6; Transylvania, several; Union, 10; Wake, 5; Wayne, several; Wilson, 5; Yancey, a few—45 counties.

CHOLERA, IN HOGS.—Onslow.

DISTEMPER, IN HORSES.—Orange.

No diseases reported from Burke, Forsyth, Haywood, Iredell, Johnston, McDowell, Polk and Watauga.

No reports received from Alexander, Ashe, Caswell, Cherokee, Columbus, Harnett, Jones, Lenoir, Macon, Montgomery, Moore, Pamlico, Rowan and Swain.

SUMMARY OF MORTUARY REPORTS FOR MARCH, 1905.**TWENTY-FOUR TOWNS.**

	<i>White.</i>	<i>Colored.</i>	<i>Total.</i>
Aggregate population	87,750	64,150	153,900
Aggregate deaths	125	129	254
Representing temporary annual death-rate per 1,000	16.7	24.1	19.8
<i>Cause of Death.</i>			
Malarial fever	1	0	1
Measles	1	2	3
Pneumonia	24	22	46
Consumption	18	14	32
Brain diseases	12	6	18
Heart diseases	7	15	22
Nenrotic diseases	2	4	6
Diarrheal diseases	1	4	5
All other diseases.....	54	55	109
Accident	3	3	6
Suicide	1	0	1
Violence	1	4	5
	125	129	254
Deaths under five years.....	24	44	68
Still-born	10	12	22

Mortuary Report for March, 1905.

TOWNS AND REPORTERS	POPULA- TION.	TEMPORARY ANNUAL DEATH-RATE PER 1,000.	By Races.			Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.	Deaths under five years.	Still-born.		
			W.	C.	Total.	By Races.	Total.	By Races.	Total.	By Races.	Total.	By Races.	Total.	By Races.	Total.	By Races.	Total.	By Races.	Total.	By Races.	Total.	By Races.	Total.	By Races.	Total.	
Charlotte	W. 11,000 Dr. F. O. Hrwwley.	6.5	18,200	26.7	14.5	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1
Durham	W. 8,000 Dr. N. M. Johnson.	30.0	13,000	31.4	33.6	1	1	1	1	1	1	1	4	3	2	3	1	8	1	1	1	1	1	1	1	1
Edenton	W. 1,200 Dr. T. J. Hoskins.	10.0	3,000	12.0	13.3	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Elizabeth City	W. 5,000 Dr. I. Fearing.	7.2	8,000	22.5	48.0	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Fayetteville	W. 2,500 Dr. A. S. Rose.	14.4	4,800	35.0	57.4	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Goldsboro	W. 3,500 Robt. A. Creech, H. O.	17.1	6,100	9.2	13.6	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Greensboro	W. 6,100 Jno. S. Michaux, C. C.	21.6	10,100	22.6	24.0	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Henderson	W. 2,100 Dr. John H. Tucker.	17.1	3,800	22.1	28.2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Laurinburg	W. 900 Dr. G. D. Everington.	0.0	1,500	8.0	20.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Lexington	W. 3,000 J. H. Moyer, Mayor.	0.0	3,600	0.0	0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Marion	W. 800 Dr. B. S. Cheek.	15.0	1,200	30.0	20.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monroe	W. 2,000 Dr. Jno. M. Blair.	6.0	3,000	12.0	8.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Oxford	W. 1,250 Dr. S. P. Booth.	19.2	2,500	19.2	19.2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Raleigh	W. 8,000 T. P. Sale, Clerk B. H.	31.5	13,800	26.1	18.6	7	4	4	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1
Salem	W. 3,300 S. E. Butner, Supt. H.	18.2	3,650	0.0	16.5	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1
Salisbury	W. 3,900 Dr. H. T. Trantham.	21.5	6,400	14.4	18.8	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Southport	W. 900 Dr. D. I. Watson.	26.7	1,400	24.0	25.7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tarboro	W. 1,800 Dr. W. J. Thigpen.	0.0	2,500	0.0	0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Wadesboro	W. 1,000 Dr. J. H. Bennett.	12.0	1,700	0.0	7.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Washington	W. 3,000 Dr. D. T. Tayloe.	32.0	5,900	29.0	30.5	2	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1
Weldon	W. 700 J. T. Gooch, Mayor.	0.0	1,400	16.0	8.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Wilmington	W. 10,000 Dr. Chas. T. Harper.	19.2	21,000	23.4	27.3	1	1	1	1	1	1	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1
Wilson	W. 3,800 Dr. W. S. Anderson.	12.6	6,800	12.0	12.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Winston	W. 6,000 Dr. J. L. Hanes.	10.0	10,500	16.0	12.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. N. G. Shaw.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. John W. Saine.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. L. Ashworth.
Ashe.....	Dr. Manley Blevins.	Macon	Dr. W. A. Rogers.
Beaufort	Dr. D. T. Tayloe.	Madison	Dr. W. J. Weaver.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin
Brunswick	Dr. J. Arthur Dosher.	Mitchell	Dr. Virgil R. Butt.
Buncombe	Dr. D. E. Sevier.	Montgomery	Dr. M. P. Blair.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus.....	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. W. P. Ivey.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. C. G. Ferebee.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clarke.	Onslow.....	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. T. A. Kirkman.	Pasquotank	Dr. J. B. Griggs.
Cherokee.....	Dr. B. B. Meroney.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. P. B. Killian.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. Zeno Brown.
Columbus.....	Dr. N. A. Thompson.	Polk	Dr. C. J. Kenworthy.
Craven.....	Dr. Joseph F. Rhem.	Randolph	Dr. W. J. Moore.
Cumberland.....	Dr. A. S. Rose.	Richmond.....	Dr. F. J. Garrett.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. W. L. Crump.
Davie	Dr. M. D. Kimbrough.	Rutherford.....	Dr. T. B. Twitty.
Duplin	Dr. A. J. Jones.	Sampson	Dr. John A. Stevens.
Durham	Dr. N. M. Johnson.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. W. J. Thigpen.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. W. O. Spencer.	Stokes	
Franklin	Dr. R. F. Yarborough.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. H. F. Glenn.	Swain.....	Dr. A. M. Bennet.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. V. J. Brown.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. John M. Blair.
Greene.....	Dr. W. B. Murphy, Jr.	Vance.....	Dr. H. H. Bass.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. J. L. McCullers
Halifax	Dr. I. E. Green.	Warren.....	Dr. M. P. Perry.
Harnett.....	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. F. Abel.	Watanga.....	Dr. H. McD. Little.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. Williams Spicer.
Hertford	Dr. C. F. Griffin.	Wilkes.....	Dr. W. P. Horton.
Hyde	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. M. R. Adams.	Yadkin	Dr. T. R. Harding.
Jackson.....	Dr. R. L. Davis.	Yancey	Dr. J. L. Ray.
Johnston	Dr. Thel Hooks.		



[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: -----

M. D.



BULLETIN

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RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	

VOL. XX.

MAY, 1905.

No. 2.

THE PATENT MEDICINE CURSE.

BY GERALD McCARTHY.

(Biologist, N. C., Board of Health.)

According to the census of 1900 the wholesale value of the "patent medicines" consumed in the United States during the census year was about \$60,000,000. Adding to this one-third for the retailer's profit, we get the enormous sum of about eighty million dollars annually worse than wasted by the American people, or, to speak more particularly, by the poorer and more ignorant classes of the American people.

It is well known to those informed in regard to the manufacture of medicines that the great majority of these nostrums, intended for internal use, contain alcohol and some narcotic like opium or cocaine or one of the newer class of synthetic nerve stimulants as the active agents. Cosmetics all contain corrosive sublimate or some other poisonous salt of mercury. Hair-dyes invariably contain lead.

The following list of proprietary nostrums and some of their active ingredients has recently been published by the Massachusetts Board of Health. It would be well for honest newspaper editors and others who have the public ear to inform the poor ignorant dupes who pay money they can ill spare for these secret drugs just what they are buying and taking into their systems.

ANALYSES BY THE MASSACHUSETTS BOARD OF HEALTH.

COSMETICS.

The following were found to contain acetate of lead (sugar of lead) or some other active lead compound:

	<i>Per Cent. of Lead Contained.</i>
Ayer's Hair Vigor contained the equivalent of about.....	0.30
"Renown" Hair Restorer contained the equivalent of about...	1.86
Mrs. Allen's Hair Restorer contained the equivalent of about..	2.30
American Hair Restorative contained the equivalent of about..	0.61
Barrett's Vegetable Hair Restorer contained the equivalent of about	0.22
Chevalier's Life for the Hair contained.....	Much
Hall's Vegetable Sicilian Hair Renewer contained the equiva- lent of about.....	1.75
Wood's Hair Restorative contained the equivalent of about....	1.59
Ring's Vegetable Ambrosia contained the equivalent of about..	1.51
Parker's Hair Balsam contained the equivalent of about.....	2.32
Wolf's Vegetable Hair Restorer contained the equivalent of about	0.95
Champlin's Liquid Pearl.....	Much

Instances of lead poisoning have been known to occur from the free external use of such preparations as the foregoing.

The following contained corrosive sublimate, or some other poisonous salt of mercury, in the proportion of 1 to 15 grains per ounce:

- Harriet Hubbard Ayer's Recamier Cream, Balm and Lotion.
- Madam Rupperf's World Renowned Face Bleach.
- Madam Yale's Excelsior Complexion Bleach.
- Hill's Freckle Lotion.
- Soule's Freckle and Moth Eradicator.
- Perry's Freckle Lotion.
- Oriental Cream.
- Mrs. McCorrison's Famous Diamond Face Lotion (14.7 grains to
the ounce).
- Royal Cream.

In one instance a six-ounce bottle contained 47 grains of corrosive sublimate; another contained 14 grains of the bichloride per ounce. It is not surprising that instances of serious harm were reported from the use of such articles.

TONICS AND BITTERS.

The following were examined for the purpose of ascertaining the percentage of alcohol in each. Some of them have been recommended as temperance drinks:

	<i>Per Cent. of Alcohol (by Volume).</i>
"Best" Tonic	7.6
Carter's Physical Extract.....	22.0
Hooker's Wigwam Tonic.....	20.7
Hop Tonic	7.0
Hoopland's German Tonic.....	29.3
Howe's Arabian Tonic, "not a rum drink".....	13.2
Jackson's Golden Seal Tonic.....	19.6
Liebig Company's Coca Beef Tonic.....	23.2
Mensman's Peptonized Beef Tonic.....	16.5
Parker's Tonic, "purely vegetable," recommended for inebriates	41.6
Schenck's Sea Weed Tonic, "entirely harmless".....	19.5
Atwood's Quinine Tonic Bitters.....	29.2
L. T. Atwood's Jaundice Bitters.....	22.3
Moses Atwood's Jaundice Bitters.....	17.1
Baxter's Mandrake Bitters.....	16.5
Boker's Stomach Bitters.....	42.6
Brown's Iron Bitters.....	19.7
Burdock Blood Bitters.....	25.2
Carter's Scotch Bitters.....	17.6
Colton's Bitters	27.1
Copp's White Mountain Bitters, "not an alcoholic beverage"	6.0
Drake's Plantation Bitters.....	33.2
Flint's Quaker Bitters.....	21.4
Goodlme's Bitters	16.1
Greene's Nervura	17.2
Hartshorn's Bitters	22.2
Hoff's Extract of Malt and Iron.....	5.24
Peruna	28.59
Vinol, Wine of Cod Liver Oil.....	18.88
Lydia Pinkham's Vegetable Compound.....	20.61
Dr. Kilmer's Swamp Root.....	7.32
Dr. Peter's Kuriko.....	14.00
Hoofland's German Bitters, "entirely vegetable and free from alcoholic stimulant"	25.6
Hop Bitters	12.0
Hostetter's Stomach Bitters.....	44.3
Kaufman's Sulphur Bitters, "contains no alcohol" (as a matter of fact it contains 20.5 per cent. of alcohol and no sulphur) ..	20.5
Kingsley's Iron Tonic.....	14.9

	<i>Per Cent. of Alcohol (by Volume).</i>
Langley's Bitters	18.1
Liverpool's Mexican Tonic Bitters.....	22.4
Paine's Celery Compound.....	21.0
Pierce's Indian Restorative Bitters.....	6.1
Puritana	22.0
Z. Porter's Stomach Bitters.....	27.9
Pulmonine	16.0
Rush's Bitters	35.0
Richardson's Concentrated Sherry Wine Bitters.....	47.5
Secor's Cinchona Bitters.....	13.1
Shonyo's German Bitters.....	21.5
Job Sweet's Strengthening Bitters.....	29.0
Thurston's Old Continental Bitters.....	11.4
Warner's Vinegar Bitters, "contains no spirit".	6.1
Warner's Safe Tonic Bitters.....	35.7
Warren's Bilious Bitters.....	21.5
Wheeler's Tonic Sherry Wine Bitters.....	18.8
Wheat Bitters	13.6
Faith Whitcomb's Nerve Bitters.....	20.3
Dr. Williams' Vegetable Jaundice Bitters.....	18.5
Whiskol, "a non-intoxicating stimulant, whiskey without its sting"	28.2
Colden's Liquid Beef Tonic, "recommended for treatment of alcohol habit"	26.5
Ayer's Sarsaparilla	26.2
Thayer's Compound Extract of Sarsaparilla.....	21.5
Hood's Sarsaparilla	18.8
Allen's Sarsaparilla	13.5
Dana's Sarsaparilla	13.5
Brown's Sarsaparilla	13.5
Corbett's Shaker Sarsaparilla.....	8.8
Radway's Resolvent	7.9

The dose recommended upon the labels of the foregoing preparations varied from a teaspoonful to a wineglassful, and the frequency also varied from one to four times a day, "increased as needed."

"BLOOD PURIFIERS."

An examination of the "sarsaparilla" remedies, or "blood purifiers," was made in 1892, and in nearly every instance the remedy was found to contain iodide of potassium in variable amounts.

The following list presents the percentage of iodide of potassium found in those samples which have been submitted to the analyst for examination:

SARSAPARILLA REMEDIES.

Name.	Per Cent. of Iodide of Potassium.	Name.	Per Cent. of Iodide of Potassium.
Wilson's-----	0.32	Woodward's-----	1.33
Howe's-----	0.33	Dudley's-----	1.50
White's-----	0.38	Cherry & Wingate's-----	1.55
No name-----	0.41	Jaynes's-----	1.59
Charles's-----	0.41	Nim's-----	1.67
Mahern's-----	0.41	Raynsford's-----	0.58
Ayer's-----	0.45	Adams's-----	0.75
Bartlett's-----	0.50	Broad & Co.'s-----	0.75
No name-----	0.50	Hood's-----	0.75
No name-----	0.50	Hutchinson's-----	0.75
Packard's-----	0.58	Dr. White's-----	0.75
Coleman & Co.'s-----	0.83	Cherry & Wingate's-----	1.67
Bass's-----	0.84	Mattison's-----	2.00
Brown's-----	1.00	Myrick's-----	2.12
Leavitt's-----	1.00	Leavitt's-----	2.17
Moriarty's-----	1.11	Church's-----	2.25
Dana's-----	1.17		

MISCELLANEOUS DRUGS.

Intemperance Cures.—Dr. Grant's "Goldeura," for the liquor and drng habits, manufactured by the Canadian Chemical Company, Rutland, Vt., and sold for \$5 per package, consisted of two bottles of liquid and one small bottle containing pills. The two liquids were found to contain 41.11 per cent. and 28.22 per cent. of alcohol by volume respectively, while the pills contained *nux vomica* and were coated with a very thin layer of gold foil, which, by the way, was the only gold found in the preparation.

The White Ribbon Remedy, put up by Dr. W. R. Brown of Boston, purporting to contain gold and alkaloids, consisted of twelve powders in a box sold for \$1. These powders were found to contain ammoniumchloride and milk sugar. Neither gold nor alkaloids were found to be present.

Champagne Tablets.—This preparation, prepared by the Champagne Tablet Company of Boston, claiming to be a stimlating and exhilarating substitute for brandy, champagne, whiskey, etc., was put out in the form of lozenges containing .05 gram of caffeine per tablet.

Catarrh Remedy.—One of these preparations was found to contain a considerable amount of cocaine hydrochlorate.

Supplementary to the above lists as quoted from the 1896 report are given the following results, obtained more recently:

STARCH IN DIABETIC FLOUR OR GLUTEN.*

Per Cent. Starch.	Price Per Pound (Cents).	Label on Package.	Manufacturer.
10.00	30	Cestus Diabetic Flour -----	American Health Food Company.
16.66	20	Cestus Diabetic Flour -----	American Health Food Company.
18.00	-----	Cestus Diabetic Flour -----	American Health Food Company.
56.20	50	Pure Vegetable Gluten-----	T. Metcalf Company.
64.28	25	Whole Wheat Gluten-----	Health Food Company, New York.
63.38	15	Bulk-----	American Health Food Company.
64.29	11	Bulk-----	Johnson Educator Food Company.
64.46	30	Unsurpassed Gluten Flour-----	Johnson Educator Food Company.
59.04	-----	Gum Gluten,† "Protein in its purest form."	The Pure Gluten Food Company. New York.

*From report of 1899, State Board of Health, page 644. †Analyzed in 1902.

The above list, long as it is, includes but a small part of the total number of secret proprietary compounds upon the American market. A chemist of the United States Department of Agriculture estimates that there are 50,000 such preparations sold.

Women, especially mothers, are the favorite victims of these advertising quacks.

Practicing physicians are at some disadvantage in advising against the use of such preparations, but the following extracts from editorials in the Ladies' Home Journal of Philadelphia must be considered free from professional prejudice and jealousy:

"Every year, particularly in the springtime, tens of thousands of bottles of patent medicines are used throughout the country by persons who are in absolute ignorance of what they are swallowing. They feel 'sluggish' after the all-winter indoor confinement; they feel that their systems need a 'toning up,' or a 'blood purifier.' Their eye catches some advertisement in a newspaper, or on a fence, or on the side of a barn, and from the cleverly-worded descriptions of symptoms they are convinced that this man's 'bitters,' or that man's 'sarsaparilla,' or that 'doctor's' (!) 'vegetable compound,' or So-and-so's 'pills' is exactly the thing they need as a 'tonic,'"

"'No use going to a doctor,' argue these folks: 'we can save that money,' and instead of paying one or two dollars for honest, intelligent medical advice they invest from twenty-five to seventy-five cents for a bottle of this, or a box of that. And what do they buy, and what do they put into their systems? Few know. Fewer realize the absolute damage they are working upon themselves and their households. For the sake of saving a physician's fee they pour into their mouths and into their systems a quantity of unknown drugs which have in them percentages of alcohol, cocaine and opium that are absolutely alarming. A mother who would hold up her hands in holy horror at the thought of her child drinking a glass of beer, which contains from two to five per cent. of alcohol, gives to that child with her own hands a patent medicine that contains from seventeen

to forty-four per cent. of alcohol—to say nothing of opium and cocaine! I have seen a temperance woman, who raged at the thought of whiskey, take bottle after bottle of some 'bitters,' which contained five times as much alcohol—and compared to which sherry, port, claret and champagne were as harmless as the pink lemonade at Sunday-school picnics."

"It is not by any means putting the matter too strongly to say that the patent-medicine habit is one of the gravest curses, with the most dangerous results, that is inflicting our American national life. Sooner or later the people of America must awaken to the fearful dangers that lie in these proprietary preparations. The mothers of our children, in particular, must have their eyes opened to the dangers that lurk in these patent medicines. Here and there a hopeful sign of an awakening is seen. Slowly but surely the best magazines are falling into line in their refusal to accept patent-medicine advertisements of any kind. Not long ago one of the insurance companies made an excellent move by requiring its medical examiner to ask of each subject for insurance, 'What patent medicines have you used during the last five years?' and gradually other insurance companies are realizing the fact that the use of patent medicines is even more injurious than the use of alcoholic liquors. But much still remains: more should be done. Public interest must be more widely aroused."

"Let the officers of the Woman's Christian Temperance Union look into the advertising columns of the religious papers of the country, and see how their columns fairly reek with the advertisements of these dangerous concoctions. Yet in these very same so-called religious papers there are official Woman's Christian Temperance Union columns setting forth the 'official' news of the organization and its branches. A pretty consistent picture do these two portions of the average religious paper present—advocating, with one hand, alcoholic prohibition, or temperance, and receiving, with the other hand, money for advertising—and thereby recommending to their readers—preparations filled ten times over with more alcohol than the beer which fills them with so much horror in the editorial columns! There are no papers published that are so flagrantly guilty of admitting to their columns the advertisements not only of alcohol-filled medicines but preparations and cure-alls of the most flagrantly obscene nature, as the so-called religious papers of this country. Let the Woman's Christian Temperance Union officers counsel its members who subscribe for these papers to compel their publishers to omit these advertisements, and if they refuse, let these people discontinue their patronage of the paper. Such measures would very quickly shut out from publicity the majority of these baneful patent medicines. There is vital, important work here for the Woman's Christian Temperance Union—work in a cause which is aiming with far greater danger at the very heart of American homes than the

cracking of a bottle of champagne over the hull of a newly-launched craft."

"Far better, ladies, that the contents of a bottle of champagne should go into the water, where it will do no one any harm, than that the contents of a bottle of 'patent medicine,' with forty per cent. of alcohol in it, should be allowed to go into the system of a child and strike at his very soul, planting the seed of a future drunkard!"

REVIEW OF DISEASES FOR APRIL, 1905.

EIGHTY-TWO COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of April the following diseases have been reported from the counties named:

MEASLES.—Bertie, many cases; Bladen, many; Camden, 4; Carteret; Caswell, several; Chowan, in all parts; Cleveland, a few; Craven, epidemic; Cumberland; Currituck, several; Dare; Davidson; Davie, 2; Duplin, 6; Durham, a few; Edgecombe, a few; Franklin, general; Gates, 150; Graham, many; Guilford, many; Harnett, several; Johnston, in all parts; Lenoir, several; Madison, in all parts; Martin, many; Mecklenburg; New Hanover, many; Onslow, 20; Pender, a few; Perquimans, 3; Person, epidemic; Pitt, 3; Richmond, 75; Rockingham, many; Sampson, many; Union, 60; Warren, a few; Wilkes, 1—38 counties.

WHOOPING-COUGH.—Ashe, 40; Cabarrus, 12; Caswell, a few; Chat-ham; Clay, 2; Cumberland, many; Dare; Durham, a few; Franklin, a few; Greene, 1; Guilford, many; Johnston, in all parts; Lincoln, 5; Madison, in all parts; Martin, many; Mecklenburg; Mitchell; Onslow, 25; Pitt, 6; Richmond, 40; Rutherford, many; Transylvania, several; Union, 20; Yancey, several—24 counties.

SCARLATINA.—Gaston, 1; Northampton, 1; Onslow, 1.

DIPHTHERIA.—Alamance, 3; Caldwell, 4; Guilford, 1; Haywood, 1; Martin, 1; New Hanover, 4; Stanly, 2; Union, 3—8 counties.

TYPHOID FEVER.—Ashe, 2; Caldwell, 1; Chatham; Edgecombe, 1; Franklin, a few; Gates, 3; Graham, 2; Lenoir, a few; Martin, sev-

eral; Onslow, 1; Pender, 2; Perquimans, 1; Pitt, 1; Randolph, 2 or 3; Rockingham, a few; Scotland, 3; Stanly, 2; Union, 10—18 counties.

MALARIAL FEVER.—Brunswick; Caswell; Dare, a few; Greene; Pender, in all parts; Sampson—6 counties.

BOWEL DISEASES.—Lenoir; Sampson.

INFLUENZA.—Ashe, in all parts; Clay, in all parts; Currituck; Gates; Greene; Lenoir, in all parts; Onslow, in all parts; Sampson; Scotland—9 counties.

PNEUMONIA.—Ashe, in all parts; Burke, a few; Catawba, 4; Currituck, a few; Davidson; Durham, 2; Jackson, 4; Lenoir, many; Martin, many; Mitchell; Pasquotank; Pender, 1; Person; Randolph, in most parts—14 counties.

MUMPS.—Caswell; Guilford; Sampson; Scotland.

VARICELLA.—Clay; Pasquotank.

SMALLPOX.—Alamance, 1; Alexander, 10 to 15; Ashe, 2; Bladen, about 10; Brunswick, several; Cabarrus, 2; Caldwell, 4; Camden, 2; Carteret, 18 to 20; Catawba, 3; Chatham, 1; Chowan, 23; Cleveland, 12; Craven, 5; Cumberland, 2; Currituck reports no cases for April and reported none for March, the statement in the last BULLETIN of several occurring in March being a clerical error; Davie, 7; Duplin, 4; Durham, 5; Gaston, 12; Gates, 3; Greene, 25; Harnett, 10; Henderson, 13; Hertford, 2; Mecklenburg, 5; Moore, 4; Nash, 3; New Hanover, 19; Northampton, 15; Pasquotank, 8; Perquimans, 32; Person, 3; Pitt, 2; Randolph, 6; Richmond, 10; Robeson, 15; Rockingham, 1; Sampson, 2; Scotland, a few; Stanly, 2; Transylvania, several; Union, 10; Wake, 20; Washington, 5—45 counties.

CHOLERA IN CHICKENS.—Clay.

CHOLERA IN HOGS.—Clay; Pender.

No diseases reported from Alleghany, Anson, Buncombe, Granville, Hyde, Iredell, McDowell, Polk, Surry, Vance, Watauga and Wilson.

No reports received from Beaufort, Cherokee, Columbus, Forsyth, Halifax, Jones, Macon, Montgomery, Onslow, Pamlico, Rowan, Wayne and Yadkin.

SUMMARY OF MORTUARY REPORTS FOR APRIL, 1905.

TWENTY TOWNS.

	<i>White.</i>	<i>Colored.</i>	<i>Total.</i>
Aggregate population	68,250	44,650	112,900
Aggregate deaths	78	85	163
Representing temporary annual death-rate per 1,000	13.7	22.8	17.3
<i>Causes of Death.</i>			
Typhoid fever	0	2	2
Malarial fever	1	0	1
Measles	1	0	1
Whooping-cough	0	1	1
Pneumonia	7	14	21
Consumption	9	18	27
Brain diseases	4	3	7
Heart diseases	4	7	11
Diarrheal diseases	3	2	5
All other diseases.....	45	35	80
Accident	2	1	3
Suicide	1	0	1
Violence	1	2	3
	78	85	163
Deaths under five years.....	14	18	32
Still-born	4	6	10

MORTUARY REPORT FOR APRIL, 1905.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH-RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL	DEATHS.	DEATHS. UNDER FIVE YEARS.	STILL-BORN.	
		RACES.	By Races.	Total.	By Races.	Total.																		
Charlotte	W. 11,000	18,200	9.8	13.2	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	9	20	3	1	
Dr. F. O. Hawley.	C. 7,200	18,300	18.3	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	11	22	12	..	
Durham	W. 8,000	13,000	24.0	28.6	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	16	31	..	2	
Dr. N. M. Johnson.	C. 5,000	36,00	36.0	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	12	15	15	..	
Edenton	W. 1,200	3,000	10.0	4.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	
Dr. T. J. Hoskins.	C. 1,800	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	..	..	..
Fayetteville	W. 2,500	4,800	24.0	22.5	..	..	..	..	..	2	1	1	..	..	..	..	..	..	..	5	9	2	..	
Dr. A. S. Rose.	C. 2,300	20.9	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	1	4	1	..	
Greensboro	W. 6,100	10,100	15.7	21.4	..	..	..	..	..	3	1	..	..	..	..	..	..	..	..	8	18	..	..
Jno. S. Michaux, C.C.	C. 4,000	30.0	..	..	1	..	..	..	..	3	2	1	..	..	..	..	..	..	..	10	2	1	..	
Henderson	W. 2,100	3,800	5.7	9.5	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	3	..	..
Dr. John H. Tucker.	C. 1,700	14.1	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..	..	..
Laurinburg	W. 900	1,500	26.7	16.0	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	2	..	..	..
Dr. G. D. Everington.	C. 600	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	..	..	..
Lexington	W. 3,000	3,600	4.0	3.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
J. H. Moyer, Mayor.	C. 600	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..
Marion	W. 800	1,200	0.0	10.0	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	0	1	..	..
Dr. B. S. Cheek.	C. 400	30.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Monroe	W. 2,000	3,000	12.0	8.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..
Dr. Jno. M. Blair.	C. 1,000	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	2	..	..
Oxford	W. 1,250	2,500	38.4	28.8	..	..	1	..	..	1	..	..	2	..	..	..	..	..	..	4	6	2	..	
Dr. S. D. Booth.	C. 1,250	19.2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	..	
Raleigh	W. 8,000	13,800	16.5	20.0	..	..	..	..	..	2	..	..	1	8	..	..	..	..	..	11	23	5	1	
T. P. Sale, Clerk B. H.	C. 5,800	24.8	..	..	1	..	..	..	..	2	3	..	6	..	..	..	..	..	..	12	3	1	..	
Salem	W. 3,300	3,650	7.3	6.6	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	2	..	..
S. E. Butner, Mayor.	C. 350	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	..	..	..
Salisbury	W. 3,900	6,400	15.4	16.9	..	..	..	..	..	..	1	..	..	1	1	1	1	1	1	5	9	..	..
Dr. H. T. Trantham.	C. 2,500	19.2	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	4	1	..	..
Southport	W. 900	1,400	13.3	17.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	..
Dr. D. I. Watson.	C. 500	24.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Tarboro	W. 1,800	2,500	0.0	4.8	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	0	1	..	..
Dr. W. J. Thigpen.	C. 700	17.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Wadesboro	W. 1,000	1,700	12.0	28.2	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	1	4	..	..
Dr. J. H. Bennett.	C. 700	51.4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Weldon	W. 700	1,400	0.0	16.5	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	0	2	..	..
J. T. Gooch, Mayor.	C. 750	32.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Wilson	W. 3,800	6,800	9.5	17.9	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..	3	10	..	..
Dr. W. S. Anderson.	C. 3,000	28.0	..	..	..	..	..	..	..	..	1	..	2	..	..	3	1	..	..	..	7	10	4	..
Winston	W. 6,000	10,500	12.0	18.4	..	..	..	..	..	..	1	..	2	..	..	2	..	..	..	..	6	16	1	1
Dr. J. L. Hanes.	C. 4,500	26.7	..	..	..	..	..	..	..	..	1	5	1	2	..	..	1	..	..	..	10	3	2	..

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. H. R. Moore.	Jones.....	Dr. N. G. Shaw.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. John W. Saine.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. L. Ashworth.
Ashe.....	Dr. Manley Blevins.	Macon	Dr. W. A. Rogers.
Beaufort	Dr. D. T. Tayloe.	Madison	Dr. W. J. Weaver.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. Arthur Dosher.	Mitchell.....	Dr. Virgil R. Butt.
Buncombe	Dr. D. E. Sevier.	Montgomery	Dr. M. P. Blair.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod
Cabarrus.....	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. W. P. Ivey.	New Hanover.....	Dr. W. D. McMillan
Camden.....	Dr. C. G. Ferebee..	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clarke.	Onslow.....	Dr. E. L. Cox.
Caswell.....	Dr. S. A. Malloy.	Orange.....	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. T. A. Kirkman.	Pasquotank	Dr. J. B. Griggs.
Cherokee.....	Dr. B. B. Meroney.	Pender.....	Dr. R. J. Williams
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. P. B. Killian.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. Zeno Brown.
Columbus.....	Dr. N. A. Thompson.	Polk	Dr. C. J. Kenworthy.
Craven.....	Dr. Joseph F. Rhem.	Randolph	Dr. W. J. Moore.
Cumberland.....	Dr. A. S. Rose.	Richmond.....	Dr. F. J. Garrett.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. W. L. Crump.
Davie	Dr. M. D. Kimbrough.	Rutherford.....	Dr. T. B. Twitty.
Duplin	Dr. A. J. Jones.	Sampson	Dr. John A. Stevens.
Durham	Dr. N. M. Johnson.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. W. J. Thigpen.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. W. O. Spencer.	Stokes	
Franklin	Dr. R. F. Yarborough.	Surry	Dr. John R. Woltz
Gaston.....	Dr. H. F. Glenn.	Swain.....	Dr. A. M. Bennet.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. V. J. Brown.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. John M. Blair.
Greene.....	Dr. W. B. Murphy, Jr.	Vance.....	Dr. H. H. Bass.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. J. L. McCullers.
Halifax	Dr. I. E. Green.	Warren.....	Dr. M. P. Perry.
Harnett.....	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. F. Abel.	Watauga.....	Dr. H. McD. Little.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. Williams Spice.
Hertford	Dr. C. F. Griffin.	Wilkes.....	Dr. W. P. Horton.
Hyde.....	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson
Iredell	Dr. M. R. Adams.	Yadkin	Dr. T. R. Harding.
Jackson.....	Dr. R. L. Davis.	Yancey	Dr. J. L. Ray.
Johnston	Dr. Thel Hooks.		

BULLETIN

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RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	

VOL. XX.

JUNE, 1905.

No. 3.

NORTH CAROLINA BOARD OF HEALTH—ANNUAL REPORT OF THE SECRETARY MAY 1, 1904, TO MAY 1, 1905.

(Read at the Conjoint Session of the Board of Health with the State Medical Society at Greensboro, May 23, 1905).

During the past year the special work of your secretary—in addition to the usual routine work of the office, which is always to the fore, and a statement of which in detail will be found in the biennial report for 1903-1904—has consisted in promoting the crusade against tuberculosis inaugurated in our last report. The suggestions therein made have been carried out as fully as our very limited facilities—half the time of one stenographer—have permitted. The plan pursued has been as follows:

First, the preparation of a pamphlet on the "Causes and Prevention of Consumption." The attempt was made to put the matter to the people as simply and clearly as possible and at the same time to make it as interesting as the narrow limits demanded by the necessary conciseness would permit. As a copy of this publication has been sent to you it is superfluous to further dwell upon it.

The question of getting the pamphlet into the hands of the people was carefully considered, and it was decided that it would be much better to send it directly to the individual instead of depending upon the "take one" principle. In a population as large as ours a selection of the individuals had to be made, of course, and the following classes, which were regarded as the most influential in this

work, were selected to be served first: Editors, physicians, ministers, lawyers, teachers, and manufacturers employing in-door labor.

Realizing that literature that is not read is usually so much waste paper, it was thought that if a short letter printed in typewriter type, with the signature of the Secretary in script, was enclosed with the pamphlet, it might excite interest, to some extent, at least. So a letter to each of the classes named above was specially composed to suit, and earnestly appealing to them to read it and assist in spreading the information contained in the pamphlet, promising in every case to send, free of charge, as many copies as the reader would agree to distribute, was enclosed with each pamphlet. The editors of our State were exceedingly kind in noticing the article in their papers, and in consequence there have been calls for it from Indiana to Texas. Ministers and teachers have shown the most interest and have agreed to do more distributing than any of the others. While by far the most important of all in the solution of this great problem is our own profession, they have, I deeply regret to say, apparently felt no concern about it. I say apparently, because they may, and in very many cases no doubt have exerted themselves to instruct their tuberculous patients and the members of their households in the proper methods of prevention. For humanity's sake, and for the honor of the profession, let us hope and believe so at any rate. It was hoped that there would be a large demand from them for the pamphlet for distribution among their tuberculous families, but that hope, much to my disappointment, not to say mortification, has proven an "iridescent dream" so far. But we will not despair. We cannot abandon the hope of securing the earnest and interested co-operation in this great work, which means more for suffering humanity than any other that can be mentioned, and which is receiving at this time so much attention and sympathetic aid from so many persons of all callings who love their fellow-men all over this great country of ours and throughout the civilized world, from the one class who can do so much to advance it.

The county medical societies could be of much service in this campaign against tuberculosis. I hope they will devote at least one meeting every year to it, having some one read a paper and then holding a symposium on the subject. As we know, the curability of tuberculosis depends most of all upon an early diagnosis—before the degenerative changes have begun—and a thorough discussion of this one aspect of the subject would doubtless eventuate in much good. The chief benefit to be derived, however, would consist in an increased interest in the subject and a keener appreciation of the grave responsibility of the physician in relation to it, whether he wishes to admit it or not. This might suggest to some the advisability of personally, as well as professionally, aiding in the various forms of effort—in helping towards the formation of anti-tuberculosis societies and by giving an occasional lecture, for example.

As this subject has been considered more or less fully in the tenth biennial report, the manuscript of which has been in the hands of the printer for months, I will not further tax your patience with it. Anybody desiring a copy of this report can get it, as soon as it is printed, by sending a request for it to the Secretary.

Smallpox has continued to prevail throughout the State, and more widely than ever before—the number of counties infected is 78. The number of cases is, white 3,636, colored 3,741, total 7,377; number of deaths, white 13, colored 18, total 31. Death-rate per cent. for the whites 0.36, for the colored 0.48, for both races combined 0.42. The figures for the last smallpox year were, respectively, cases, 2,840, 2,530, 5,370; death-rate, 1.23, 1.34, 1.28; for the year before that—1902-'03—1,861, 2,595, 4,456, with a death-rate per cent. of 3.12, 4.04, 3.66. From these figures it appears that the disease has been becoming more abundant and decidedly less fatal. As a consequence of this mildness the difficulty in controlling it has become greater than ever. Indeed, it gives some color for reasonableness to the suggestion that has been made to abandon the attempt to control it at all, although, of course, that cannot be seriously considered. There is no telling when it may become very much more fatal. The following is a tabulated statement of the smallpox in the State for the past year. While it shows a larger number of cases than ever, I am sure that a great many cases have never been reported:

SMALLPOX REPORT FROM MAY 1, 1904, TO MAY 1, 1905.

County.	Number of Cases.			Number of Deaths.		
	White.	Colored.	Total.	White.	Colored.	Total.
Alamance	23	—	23	—	—	—
Alexander	45	—	45	—	—	—
Anson	243	63	306	—	—	—
Ashe	286	60	346	2	2	4
Beaufort	78	112	190	1	1	2
Bertie	—	1	1	—	—	—
Bladen	30	70	100	1	—	1
Buncombe	31	7	38	—	—	—
Brunswick	100	200	300	3	6	9
Burke	7	—	7	—	—	—
Cabarrus	17	3	20	—	—	—
Caldwell	4	13	17	—	—	—
Camden	7	205	212	—	—	—
Carteret	32	2	34	—	—	—
Catawba	5	—	5	—	—	—
Chatham	3	23	26	—	—	—
Chowan	21	36	57	—	—	—
Clay	8	—	8	—	—	—
Cleveland	10	40	50	—	—	—
Craven	2	43	45	—	2	2
Cumberland	8	6	14	—	—	—
Currituck	—	10	10	—	—	—
Davidson	2	3	5	—	—	—
Davie	21	7	28	1	—	1
Duplin	—	1	53	54	—	—
Durham	11	34	45	—	—	—
Edgecombe	18	40	58	—	—	—
Forsyth	35	15	50	1	—	1
Franklin	14	6	20	—	—	—

SMALLPOX REPORT—CONTINUED.

County.	Number of Cases.			Number of Deaths.		
	White.	Colored.	Total.	White.	Colored.	Total.
Gaston	30	18	48			
Gates	40	—	40			
Granville	25	—	25			
Greene	75	225	300			
Guilford	21	62	83			
Harnett	28	26	64			
Haywood	38	—	38	1	—	1
Henderson	86	7	93			
Hertford	5	122	127			
Hyde	—	4	4			
Iredell	—	8	8			
Jackson	100	—	100			
Johnston	4	5	9			
Lenoir	57	51	108		1	1
Macon	2	—	2			
Madison	6	—	6			
Mecklenburg	27	7	34			
Mitchell	6	—	6			
Moore	24	4	28	1	—	1
Nash	17	63	80			
New Hanover	39	165	204			
Northampton	26	15	41			
Onslow	126	—	126	1	—	1
Orange	1	—	1			
Pamlico	191	—	191			
Pasquotank	5	18	23			
Pender	5	8	13			
Perquimans	—	32	32			
Person	25	7	32			
Pitt	100	50	150		1	1
Randolph	35	—	35			
Richmond	25	40	65			
Robeson	40	30	70			
Rockingham	12	8	20			
Rowan	4	1	5			
Rutherford	1	9	10			
Sampson	12	90	102			
Scotland	1,000	1,350	2,350		2	2
Stanly	10	1	11		3	3
Swain	9	—	9			
Transylvania	39	—	39			
Wake	177	47	224			
Washington	—	2	2			
Warren	—	4	4			
Wayne	30	100	130			
Wilkes	34	96	130			
Wilson	11	2	13			
Yancey	26	—	26		1	1
Total in 78 counties	3,636	3,739	7,375	13	18	31
Death-rate, per cent.				0.36	0.48	0.42

The laboratory has continued to be of much assistance in our sanitary work—more than for any preceding year—at the same time it must be confessed that our physicians do not use it as they ought. The report of the Biologist is appended.

In the way of sanitary legislation we have secured the passage by the last Legislature of an act to establish a State Laboratory of Hygiene, but failed to get an appropriation large enough to justify cutting loose from the Agricultural Department. The ice, however, has been broken and we hope to get sufficient money at the next

session of the General Assembly to put us on an independent basis. We can then offer still greater facilities to the profession, although it must be confessed that they do not take advantage of what we have been offering as we believe they should.

In conclusion, I wish to bespeak the cordial co-operation and assistance of our brethren of the profession in our work. While we may accomplish something without this, their aid and help would be simply invaluable.

REVIEW OF DISEASES FOR MAY, 1905.

EIGHTY COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of May the following diseases have been reported from the counties named:

MEASLES.—Alamance; Camden, 4; Carteret; Craven, several; Davidson; Davie, several; Duplin, many; Edgecombe, 1; Forsyth, many; Franklin, many; Gates, many; Graham, a few; Guilford, 2; Halifax, epidemic; Harnett, a few; Hertford, a few; Johnston, several; Martin, many; Mecklenburg; Northampton, many; Onslow; Orange; Person; Pitt; Rockingham, several; Sampson, many; Surry, 5; Transylvania, epidemic; Union, 30; Vance, many; Wake, 7; Warren, several; Washington, 12—33 counties.

WHOOPING-COUGH.—Anson, in all parts; Cabarrus, 12; Caldwell, 41; Catawba, 45; Cumberland, general; Davidson; Franklin, many; Gaston, many; Hertford, a few; Lincoln, 6; Martin, many; Mecklenburg; Northampton, many; Onslow; Pitt; Richmond, epidemic; Rockingham, a few; Rowan, 40; Rutherford, a few; Surry, 10; Transylvania, several; Union, 25; Wake, 4; Yadkin, many; Yancey—25 counties.

SCARLATINA.—Ashe, 8; Camden, 1; Catawba, 2; Forsyth, 2; Mecklenburg; New Hanover, 1—6 counties.

DIPHTHERIA.—Cabarrus, 2; Cumberland, 1; Durham, 1; Guilford, 1; Union, 3; Yancey, 1—6 counties.

TYPHOID FEVER.—Alleghany, 1; Caldwell, 8; Davidson; Duplin, 1; Edgecombe, 1; Gates, 2; Harnett, many; Hertford, 5; Iredell, 3;

McDowell, 1; Martin, several; Mecklenburg, several; Montgomery, 1; Nash, 2; New Hanover, 4; Onslow, 1; Robeson, a few; Rockingham; Rutherford, 2; Sampson, a few; Scotland, a few; Union, 20; Wake, 4; Warren, 2; Watauga, 1; Yadkin, 2; Yancey, 1—27 counties.

MALARIAL FEVER.—Camden; Edgecombe; Halifax; Martin.

MALARIAL FEVER, HEMORRHAGIC.—Camden, 2.

BOWEL DISEASES.—Alamance; Alexander; Bladen; Burke; Clay; Cleveland; Currituck; Duplin; Edgecombe; Forsyth; Gates; Guilford; Halifax; Harnett; Henderson; Hertford; Northampton; Onslow; Pender; Richmond; Robeson; Rockingham; Wake; Warren; Washington; Yadkin—26 counties.

MUMPS.—Person and Sampson.

PNEUMONIA.—Alleghany, 1; Ashe, 3; Cabarrus, 3; Martin, several; Mecklenburg; New Hanover, 1; Wake, 19—7 counties.

SMALLPOX.—Bladen, 2; Brunswick, several; Cabarrus, 1; Catawba, 1; Cherokee, 17; Cleveland, 2; Cumberland, 14; Davie, 10; Duplin, 2; Durham, 2; Forsyth, 2; Franklin, 1; Granville, 1; Henderson, 1; Hyde, 1; Montgomery, 2; Nash, 15; New Hanover, 15; Northampton, 10; Pasquotank; Pender, several; Person, 5; Robeson, 10; Rockingham, 1; Rowan, 4; Sampson, 2; Washington, 36—27 counties.

CHOLERA, IN CHICKENS.—Hertford and Lincoln.

DISTEMPER, IN HORSES.—Hertford.

No diseases reported from Beaufort, Bertie, Buncombe, Dare, Haywood, Jackson, Polk, Randolph, Wilkes and Wilson.

No reports received from Caswell, Chatham, Chowan, Columbus, Greene, Jones, Lenoir, Macon, Madison, Mitchell, Moore, Pamlico, Perquimans, Stanly and Wayne.

SUMMARY OF MORTUARY REPORTS FOR MAY, 1905.

TWENTY-TWO TOWNS.

	<i>White.</i>	<i>Colored.</i>	<i>Total.</i>
Aggregate population	86,250	61,550	147,800
Aggregate deaths	89	125	214
Representing temporary annual death-rate per 1,000	12.4	24.4	17.4
CAUSES OF DEATH.			
Typhoid fever	1	1	2
Malarial fever	1	3	4
Measles	0	1	1
Pneumonia	6	7	13
Consumption	10	23	33
Brain diseases	9	9	18
Heart diseases	8	9	17
Neurotic diseases	4	7	11
Diarrheal diseases	14	18	32
All other diseases	33	43	76
Accident	1	4	5
Suicide	1	0	1
Violence	1	0	1
Deaths under five years.....	28	46	74
Still-born	9	7	16

MORTUARY REPORT FOR MAY, 1905.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH-RATE PER 1,000.		Total.	Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	Ali Other Diseases.	Accident.	Suicide.	Violence.	By Towns.	Deaths under five years.	Still-born.		
		By Races.	Total.																						
Charlotte	W. 11,000	18,200	8.7	12.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. F. O. Hawley.	C. 7,200	18,3	18.3																						
Durham	W. 8,000	13,000	19.5	20.3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. T. A. Mann.	C. 5,400	21.6																							
Elizabeth City	W. 5,000	8,000	24.0	19.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. I. Fearing.	C. 3,000	12.0																							
Fayetteville	W. 2,500	4,800	14.4	25.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. A. S. Rose.	C. 2,300	36.5																							
Goldsboro	W. 3,500	6,100	10.3	21.6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Robt. A. Creech, H. O.	C. 2,600	27.4																							
Greensboro	W. 6,100	10,100	19.7	28.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jno. S. Michaux, C. C.	C. 4,000	42.0																							
Henderson	W. 2,100	3,800	0.0	12.6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. John H. Tucker.	C. 1,700	8.2																							
Marlboro	W. 800	1,200	0.0	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. B. L. Ashworth.	C. 400	0.0																							
Monroe	W. 2,000	3,000	6.0	8.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. Jno. M. Blair.	C. 1,000	12.0																							
Oxford	W. 1,250	2,500	0.0	9.6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. S. D. Booth.	C. 1,250	19.2																							
Raleigh	W. 8,000	13,800	24.0	28.7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
T. P. Sale, Clerk B. H.	C. 5,800	35.2																							
Salem	W. 3,300	3,650	3.6	6.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
S. E. Butner, Supt. H. C.	C. 350	34.3																							
Salisbury	W. 3,900	6,400	6.2	13.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. H. T. Tranham.	C. 2,500	24.0																							
Southport	W. 900	1,400	0.0	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. J. A. Dosher.	C. 500	0.0																							
Tarboro	W. 1,800	2,500	13.3	19.2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. S. N. Harrell.	C. 700	34.3																							
Wadesboro	W. 1,000	1,700	48.0	35.3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. J. H. Bennett.	C. 700	17.1																							
Washington	W. 3,000	5,900	8.0	10.2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. John G. Blount.	C. 2,900	12.4																							
Waynesville	W. 1,600	2,000	15.0	12.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. Thos. Stringfield.	C. 400	0.0																							
Weldon	W. 700	1,450	0.0	8.3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
J. T. Gooch, Mayor.	C. 750	16.0																							
Wilmington	W. 10,000	21,000	9.6	20.6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. Chas. T. Harper.	C. 11,000	30.5																							
Wilson	W. 3,800	6,800	3.1	7.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. W. S. Anderson.	C. 3,000	12.0																							
Winston	W. 6,000	10,500	6.0	9.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. J. L. Hanes.	C. 4,500	13.3																							

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. George W. Long.
Alexander	Dr. C. J. Carson.
Alleghany	Dr. Robt. Thompson.
Anson	Dr. J. H. Bennett.
Ashe.....	Dr. Manley Blevins.
Beaufort	Dr. John G. Blount.
Bertie	Dr. H. V. Dunstan.
Bladen.....	Dr. L. B. Evans.
Brunswick	Dr. J. Arthur Dosher.
Buncombe	Dr. D. E. Sevier.
Burke.....	Dr. J. L. Laxton.
Cabarrus	Dr. R. S. Young.
Caldwell	Dr. C. L. Wilson.
Camden.....	Dr. C. G. Ferebee.
Carteret	Dr. F. M. Clarke.
Caswell	Dr. S. A. Malloy.
Catawba	Dr. Geo. H. West.
Chatham.....	Dr. T. A. Kirkman.
Cherokee.....	Dr. J. A. Abernethy.
Chowan.....	Dr. T. J. Hoskins.
Clay	Dr. J. M. Sullivan.
Cleveland	Dr. B. H. Palmer.
Columbus.....	Dr. N. A. Thompson.
Craven.....	Dr. Joseph F. Rhem.
Cumberland.....	Dr. A. S. Rose.
Currituck	Dr. H. M. Shaw.
Dare	Dr. W. B. Fearing.
Davidson.....	Dr. Joel Hill.
Davie	Dr. M. D. Kimbrough.
Duplin.....	Dr. A. J. Jones.
Durham	Dr. T. A. Mann.
Edgecombe	Dr. S. N. Harrell.
Forsyth.....	Dr. S. F. Pfahl.
Franklin	Dr. R. F. Yarborough.
Gaston.....	Dr. H. F. Glenn.
Gates.....	Dr. W. O. P. Lee.
Graham.....	Dr. R. J. Orr.
Granville	Dr. S. D. Booth.
Greene.....	Dr. W. B. Murphy, Jr.
Guilford.....	Dr. Edmund Harrison.
Halifax	Dr. I. E. Green.
Harnett.....	Dr. O. L. Denning.
Haywood	Dr. J. R. McCracken.
Henderson	Dr. J. G. Waldrop.
Hertford	Dr. C. F. Griffin.
Hyde.....	Dr. E. H. Jones.
Iredell	Dr. M. R. Adams.
Jackson.....	Dr. William Self.
Johnston	Dr. Thel Hooks.
Jones.....	Dr. N. G. Shaw.
Lenoir	Dr. C. L. Pridgen.
Lincoln	Dr. John W. Saine.
McDowell	Dr. B. L. Ashworth.
Macon	Dr. W. A. Rogers.
Madison	Dr. W. J. Weaver.
Martin.....	Dr. W. H. Harrell.
Mecklenburg.....	Dr. C. S. McLaughlin.
Mitchell	Dr. Virgil R. Butt.
Montgomery	Dr. J. B. Shamburger.
Moore.....	Dr. Gilbert McLeod.
Nash	Dr. J. P. Battle.
New Hanover	Dr. W. D. McMillan.
Northampton.....	Dr. H. W. Lewis.
Onslow.....	Dr. Cyrus Thompson.
Orange.....	Dr. C. D. Jones.
Pamlico.....	Dr. H. P. Underhill.
Pasquotank	Dr. J. B. Griggs.
Pender.....	Dr. R. J. Williams.
Perquimans.....	Dr. C. C. Winslow.
Person	Dr. J. A. Wise.
Pitt.....	Dr. Joseph E. Nobles.
Polk	Dr. C. J. Kenworthy.
Randolph	Dr. A. M. Bulla.
Richmond.....	Dr. L. D. McPhail.
Robeson	Dr. H. T. Pope.
Rockingham	Dr. Sam Ellington.
Rowan.....	Dr. J. S. Brown.
Rutherford.....	Dr. E. B. Harris.
Sampson	Dr. J. O. Matthews.
Scotland	Dr. A. W. Hamer.
Stanly.....	Dr. V. A. Whitley.
Stokes	Stokes
Surry	Dr. John R. Woltz.
Swain.....	Dr. R. L. Davis.
Transylvania	Dr. C. W. Hunt.
Tyrrell.....	Tyrrell
Union	Dr. John M. Blair.
Vance.....	Dr. John Hill Tucker.
Wake.....	Dr. J. W. McGee, Jr.
Warren.....	Dr. P. J. Macon.
Washington	Dr. W. H. Ward.
Watanga.....	Dr. H. McD. Little.
Wayne.....	Dr. William Spicer.
Wilkes.....	Dr. W. P. Horton.
Wilson.....	Dr. W. S. Anderson.
Yadkin	Dr. M. A. Royall.
Yancey	Dr. J. B. Gibbs.



[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed? If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

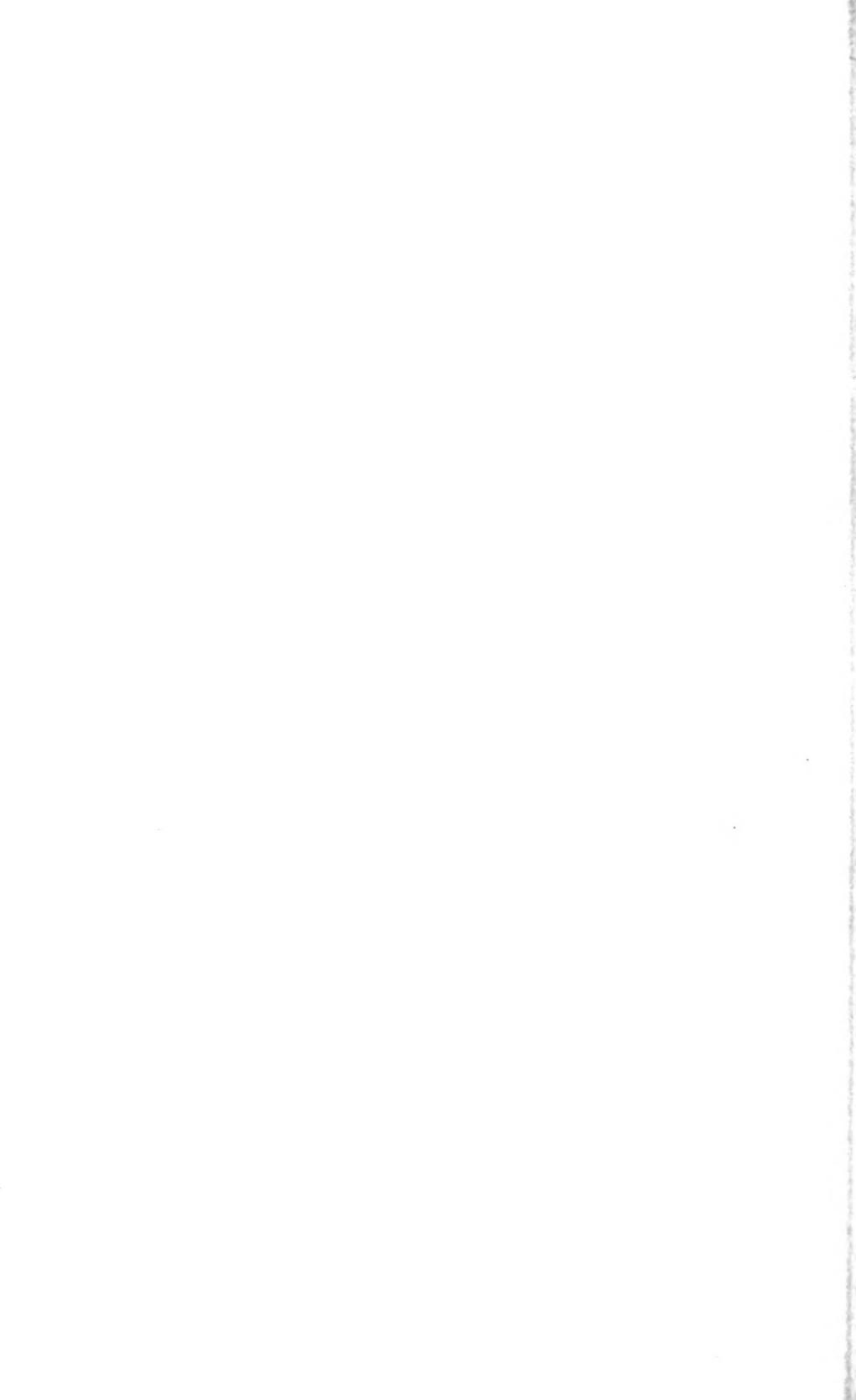
What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.



BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i> , Wilmington.	W. P. IVEY, M. D.-----Lenoir.
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RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	

VOL. XX.

JULY, 1905.

No. 4.

PHYSICAL EVILS OF CHILD LABOR.

By A. J. MCKELWAY, Assistant Secretary of National Child Labor Committee.

(Abstract of Address before the Board of Health, at its meeting in Greensboro,
May 24, 1905).

When the health and the vitality of a large number of our own people are concerned, to whom shall we go save to the physicians, whose ministry it is to usher life into the world, to save it and to prolong it, and to whom, therefore, life itself should be a more sacred thing than to the ordinary man? When I think of our little children of the Southern States, with their splendid physical inheritance, and how much it costs to bear them and rear them and train them, it does seem a pity that this stock should be depreciated by putting the child to work for the man's long working-day.

The evil is a national and not a sectional evil. But because of its newness in the South we have been the last to remedy it by legislation, and the proportion of child to adult workers is four times as large in the South as it is in the Northern or Western States. The physiological question is, whether children under fourteen should be allowed to work in a factory for twelve hours a day; especially whether young girls between the ages of twelve and fourteen, in this climate, should be allowed to do the spinning and weaving that falls to them, at this critical period of their lives, during the twelve-hour working day which is the rule in North Carolina and the cotton manufacturing States of the South; whether children of either sex under fourteen should be allowed to work during the night.

It may be of interest for you to know that the first public protest made against this evil, which has been the curse of the cotton mills especially for a hundred and fifty years, was made by physicians. Dr. Thomas Percival, author of "Medical Ethics," made an investigation of the causes of an epidemic of fever in the Manchester mill districts which had been accompanied by frightful mortality among the children. Dr. Percival and his associates were unable to ascertain how the fever originated, but they were unanimous in their opinion that it had been "supported, diffused and aggravated by the injury done to young persons through confinement and too long continued labor, to which evils the cotton mills have given occasion." And they passed the following recommendations to the Manchester magistrates:

"We earnestly recommend a longer recess from labor at noon and a more early dismissal from it in the evening to all those who work in the cotton mills; but we deem this indulgence essential to the present health and future capacity for labor for those who are under the age of fourteen; for the active recreations of childhood and youth are necessary to the right conformation of the human body."

This was in 1794. In 1796 Dr. Percival and his associates in the medical profession had formed themselves into the Manchester Board of Health. They felt it incumbent to lay before the public the result of their inquiries into the condition of the cotton mills of Manchester. They said: "It appears that the children and others who work in large cotton factories are peculiarly disposed to be affected by the contagion of fever." And among the causes of this they found one to be "the want of active exercise which nature points out as essential in childhood and youth to invigorate the system and to fit our species for the employments and the duties of manhood." They went on to say:

"The untimely labor of the night and the protracted labor of the day, with respect to children, not only tends to diminish future expectations as to the general sum of life and industry by impairing the strength and destroying the vital stamina of the rising generation, but it too often gives encouragement to idleness, extravagance and profligacy in the parents, who, contrary to the order of nature, subsist by the oppression of their offspring."

It would have been well if England had followed the advice of her physicians at once instead of fighting over the question inch by inch for a hundred years; for in that time the physical vitality of the factory populations has been fatally sapped. This is now known to be the real secret of the disaster to the British army in the South African war.

Dr. Charles W. Roberts of England gives the following striking results of the examination of 19,846 boys and men, of whom 5,915 belonged to the non-laboring class and 13,931 to the artisan class,

The difference in height, weight and chest girth, from thirteen to sixteen years of age, is as follows:

HEIGHT (INCHES).

Age	13	14	15	16
Non-laboring class	58.79	61.11	63.47	66.40
Artisan class	55.93	57.76	60.58	62.93
	—	—	—	—
	2.86	3.35	2.89	3.47

WEIGHT (POUNDS).

Age	13	14	15	16
Non-laboring class	88.60	99.21	110.42	128.34
Artisan class	78.27	84.61	96.79	108.70
	—	—	—	—
	10.33	14.60	13.63	19.64

CHEST GIRTH (INCHES).

Age	13	14	15	16
Non-laboring class	28.41	29.65	30.72	33.08
Artisan class	25.24	26.28	27.51	28.97
	—	—	—	—
	3.17	3.37	3.21	4.11

And among artisans the people of the cotton mills stand lowest in the physical scale.

Commenting on these figures, Dr. W. W. Keen of Philadelphia says:

"Constant standing and superintending a loom, or other similar work requiring constant standing, itself stunts the growth of children at these plastic ages. The ages in question, thirteen to sixteen years, are precisely the ages when, under favorable circumstances, these children develop physically with great rapidity. This is especially true of girls. To confine these children in mills, with lack of opportunity for schooling, is to prevent both the physical and mental development of such children to a degree which is most injurious, not only to them, but also to the community—that is to say, the State."

"In my clinics for the past forty years I have had many hundreds of such children, under-developed in mind and body, ill-fitted to enjoy life themselves or to transmit vigorous minds and healthy bodies to their children."

The same process which Mr. Chamberlain is trying to counteract in England by a protective tax on the products of the farm, thus sending the people back to the country from the overcrowded factory districts, is being repeated on a tremendous scale in the South and in North Carolina. From one little village called Clyde's, near Waynes-

ville, during the past year, fifteen hundred of our splendidly developed mountain people have gone in the past year to the cotton mills of South Carolina. They are being tempted from the farm by the prospect of getting wages from every member of the family from eight or ten years up. There is just now an unprecedented demand in the factories for labor, and the demand is being met by the employment of children on a larger scale than ever before. It is a conservative estimate to say that there are fifteen thousand children under fourteen working in the cotton mills of North Carolina twelve hours a day or night, and the greater part of these are girls, the future mothers of the race. "It is a shame for a nation to make its young girls weary."

Is it not time for such protest to be made by the physicians of North Carolina against the extension of this evil as was made by the physicians of old England more than a hundred years ago? The science of medicine has advanced almost infinitely since that day. But the fundamental facts regarding childhood and its rights remain unchanged with the centuries.

REVIEW OF DISEASES FOR JUNE, 1905.

SEVENTY-TWO COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of June the following diseases have been reported from the counties named:

MEASLES.—Camden, 7 cases; Cleveland, a few; Craven, a few; Currituck, many; Davidson; Duplin, 4; Durham, 2; Forsyth, 4; Henderson, 6; Onslow; Richmond, epidemic; Robeson, a few; Rockingham, a few; Sampson, a few; Scotland; Surry, 5; Transylvania, several; Union, 150; Wake, 17; Washington, 10—20 counties.

WHOOPING-COUGH.—Alexander, 25; Anson, in all parts; Caldwell, 8; Catawba, 31; Cleveland, a few; Cumberland, a few; Dare; Davidson; Durham, 7; Hertford, 3; Madison; Mecklenburg; Nash; Onslow; Pasquotank; Pitt; Richmond, epidemic; Rockingham, a few; Rowan, 25; Surry, 10; Transylvania, a few; Union, 50; Wake, 2—23 counties.

SCARLATINA.—Forsyth, 1; Mecklenburg; Rockingham, a few.

DIPHTHERIA.—Cabarrus, 1; Durham, 1; Edgecombe, 1; Guilford, 1; Haywood, 1; Rutherford, 1; Warren, 1—7 counties.

TYPHOID FEVER.—Alamance, 1; Alexander, 10 or 15; Bertie, 1; Bladen, 2; Burke, 6; Cabarrus, 2; Caldwell, 31; Camden, 1; Catawba, 3; Cleveland, a few; Craven, 5; Cumberland, a few; Davidson; Davie, a few; Duplin, 1; Durham, 4; Forsyth, 12; Gaston, a few; Gates, 2; Guilford, 3; Harnett, 23; Haywood, 3; Hertford, a few; Iredell, 22; Jackson, 6; Lincoln, 2; McDowell; Mecklenburg; Montgomery, 2; Nash, 3; New Hanover, 14; Northampton, many; Onslow; Person, 6; Pitt, a few; Randolph, 2; Robeson, a few; Rockingham; Rowan, 2; Rutherford, 4; Sampson, a few; Scotland, 7; Surry, 3; Union, 20; Vance, a few; Wake, 2; Warren, 10; Washington, 2; Watauga, 1; Yadkin, 6; Yancey, 1—51 counties.

MALARIAL FEVER.—Currituck, a few; Duplin; Edgecombe, in all parts; Gates, 6; Onslow; Randolph; Robeson; Wake, 3—8 counties.

MALARIAL FEVER, PERNICIOUS.—Randolph, 2; Robeson, 1; Wake, 3.

BOWEL DISEASES.—Alamance; Alleghany, in all parts; Burke, in most parts; Camden, in all parts; Cherokee, dysentery locally epidemic; Currituck; Davie; Forsyth, in all parts; Gates; Hertford and Hyde, in all parts; Montgomery; Northampton, Onslow, Orange, Person, Randolph, Rockingham and Sampson, in all parts; Stokes; Wake, in all parts; Warren; Yadkin, in most parts; Yancey, in all parts—24 counties.

MUMPS.—Scotland.

PNEUMONIA.—Davidson; Nash, 1.

VARICELLA.—Pasquotank, a few.

SMALLPOX.—Brunswick, 1; Burke, 3; Catawba, 2; Craven, 4; Cumberland, 4; Duplin, 1; Harnett, 5; Henderson, 2; Hyde, 5; Montgomery, 1; New Hanover, 8; Northampton, 1; Pasquotank; Robeson, 10; Union, 10; Washington, only one new case in June, 25 others left unrecovered from May—16 counties.

CHOLERA, IN CHICKENS.—Cleveland, Gates.

CHOLERA, IN HOGS.—Edgecombe, Sampson.

INFLUENZA, IN HORSES.—Rowan.

MENINGITIS, IN HORSES.—Warren.

No diseases reported from Buncombe, Carteret, Johnston, Polk, Wilkes and Yadkin.

No reports received from Ashe, Beaufort, Caswell, Chatham, Chowan, Clay, Columbus, Franklin, Graham, Greene, Jones, Lenoir, Macon, Martin, Mitchell, Moore, Pamlico, Pender, Perquimans, Stanly, Swain and Wayne.

SUMMARY OF MORTUARY REPORTS FOR JUNE, 1905.

TWENTY-ONE TOWNS.

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population	91,150	60,250	151,400
Aggregate deaths	163	155	318
Representing temporary annual death-rate per 1,000	21.4	29.2	25.2
<i>Causes of Death.</i>			
Typhoid fever	4	7	11
Malarial fever	0	2	2
Diphtheria	1	0	1
Whooping-cough	0	2	2
Measles	0	1	1
Pneumonia	4	4	8
Consumption	14	22	36
Brain diseases	15	6	21
Heart diseases	11	15	26
Neurotic diseases	8	3	11
Diarrhoeal diseases	48	31	79
All other diseases.....	52	59	111
Accident	4	2	6
Suicide	2	0	2
Violence	0	1	1
	163	155	318
Deaths under five years.....	78	55	133
Still-born	5	17	22

Mortuary Report for June, 1905.

TOWNS
AND REPORTERS

	POPULA- TION.	TEMPORARY ANNUAL DEATH-RATE PER 1,000.																									
		RACES.	By Races.	Total.	By Races.	Total.	Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Barbital Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.	TOWNS.	Deaths under five years.	Still-born.	
Charlotte	W. 11,000	18,200	10.9	14.5	2	2																	10	22	6	1	
Dr. F. O. Hawley.	C. 7,200	20.0																									
Durham	W. 12,000	18,000	14.0		17.3																			12	26	9	1
Dr. T. A. Mann.	C. 6,000	24.0																									
Elizabeth City	W. 5,000	8,000	24.0		28.5	1																		10	4		
Dr. H. D. Walker.	C. 3,000	36.0																									
Fayetteville	W. 2,500	4,800	33.6		27.5																			9	19	5	5
Dr. A. S. Rose.	C. 2,300	20.9																									
Goldsboro	W. 3,500	6,100	20.6		37.4																			6	1		
Robt. A. Creech, H. O.	C. 2,600	60.0																									
Greensboro	W. 6,100	10,100	37.4		44.0	1																		13	19	7	1
Jno. S. Michaux, C. C.	C. 4,000	49.0																									
Lexington	W. 3,000	3,600	16.0		13.3																			4	3		
J. H. Moyer, Mayor.	C. 600	0.0																									
Marion	W. 800	1,200	60.0		40.0	1																		4	4		
Dr. B. L. Ashworth.	C. 400	0.0																									
Oxford	W. 1,250	2,500	9.6		24.0																			1	5	1	
Dr. S. D. Booth.	C. 1,250	38.4																									
Raleigh	W. 8,000	13,800	28.5		26.1																			19	7		
T. P. Sale, Clerk E. H.	C. 5,800	22.8																									
Salem	W. 3,300	3,650	29.1		68.6	32.7																	8	10	4		
S. E. Butner, Supt. H.	C. 350	0.0																									
Salisbury	W. 3,900	6,400	15.4		15.0																			5	8	4	
Dr. H. T. Trantham.	C. 2,500	14.4																									
Southport	W. 900	1,400	40.0		34.3																			3	4	1	
Dr. J. A. Dosher.	C. 500	24.0																									
Tarboro	W. 1,800	2,500	26.7		38.4	1																		4	8		
Dr. S. N. Harrell.	C. 700	68.6																									
Wadesboro	W. 1,000	1,700	24.0		21.2																			2	3	1	
Dr. J. H. Bennett.	C. 700	17.1																									
Washington	W. 3,000	5,900	24.0		33.1	28.5																	6	14	3		
Dr. John G. Blount.	C. 2,900	0.0																									
Waynesville	W. 1,600	2,000	0.0		0.0																			0	0		
Dr. Thos. Stringfield.	C. 400	0.0																									
Weldon	W. 700	1,450	51.4		66.2																			3	8	1	
J. T. Gooch, Mayor.	C. 750	80.0																									
Wilmington	W. 11,000	21,000	28.4		29.5	2																		26	52	13	1
Dr. Chas. T. Harper.	C. 10,000	31.2																									
Wilson	W. 3,800	6,800	9.5		21.2																			3	12	2	1
Dr. W. S. Anderson.	C. 3,000	36.0																									
Winston	W. 6,000	10,500	14.0		24.0	1																		7	21	3	1
Dr. J. L. Hanes.	C. 4,500	37.3																									

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate:
 "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits
 during the above month."

County Superintendents of Health.

Alamance	Dr. George W. Long.	Jones.....	Dr. N. G. Shaw.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. John W. Saine.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. L. Ashworth.
Ashe.....	Dr. Manley Blevins.	Macon	Dr. W. A. Rogers.
Beaufort	Dr. John G. Blount.	Madison	Dr. W. J. Weaver.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. Arthur Dosher.	Mitchell.....	Dr. Virgil R. Butt.
Buncombe	Dr. D. E. Sevier.	Montgomery	Dr. J. B. Shamburger.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus.....	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. C. L. Wilson.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. C. G. Ferebee.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clarke.	Onslow.....	Dr. Cyrus Thompson.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. T. A. Kirkman.	Pasquotank	Dr. J. B. Griggs.
Cherokee.....	Dr. J. A. Abernathy.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans	Dr. C. C. Winslow.
Clay	Dr. J. M. Sullivan.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. Joseph E. Nobles.
Columbus.....	Dr. H. B. Maxwell.	Polk	Dr. C. J. Kenworthy.
Craven.....	Dr. Joseph F. Rhem.	Randolph	Dr. A. M. Bulla.
Cumberland.....	Dr. A. S. Rose.	Richmond.....	Dr. L. D. McPhail.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. J. S. Brown.
Davie	Dr. M. D. Kimbrough.	Rutherford.....	Dr. E. B. Harris.
Duplin	Dr. A. J. Jones.	Sampson	Dr. J. O. Matthews.
Durham	Dr. T. A. Mann.	Scotland	Dr. A. W. Haner.
Edgecombe	Dr. S. N. Harrell.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. S. F. Pfohl.	Stokes	
Franklin	Dr. R. F. Yarborough.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. H. F. Glenn.	Swain.....	Dr. R. L. Davis.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. R. J. Orr.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. Henry D. Stewart.
Greene.....	Dr. W. B. Murphy, Jr.	Vance.....	Dr. John Hill Tucker.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. W. McGee, Jr.
Halifax	Dr. I. E. Green.	Warren.....	Dr. P. J. Macon.
Harnett.....	Dr. L. J. Arnold.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. R. McCracken.	Watauga.....	Dr. H. McD. Little.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. William Spicer.
Hertford	Dr. C. F. Griffin.	Wilkes.....	Dr. W. P. Horton.
Hyde	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. M. R. Adams.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. William Self.	Yancey	Dr. J. B. Gibbs.
Johnston	Dr. Thel Hooks.		

BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i> , Wilmington.	T. E. ANDERSON, M. D., Statesville.
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RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	

VOL. XX.

AUGUST, 1905.

No. 5.

YELLOW FEVER.

While limited, so far, to a small section of our country—New Orleans and a few towns in the vicinity—the outbreak of yellow fever there is the most interesting and important sanitary subject of the day. To the people of our Southern States it is one of absorbing anxiety, for, notwithstanding all the precautions taken, there are so many ways in which an inland quarantine can be evaded that no susceptible community can tell when it may appear therein. In spite of the fact that its method of transmission by a certain species of mosquito, the *Stegomyia fasciata*, has been demonstrated, and the spread of the disease can be surely prevented by the immediate and complete screening of the patient against this insect, we find that it has spread and continues to do so. The cause of this is the same as in other transmissible diseases—the failure of prompt notification, owing to the patient's having no physician in time, a mistaken diagnosis, or, in some instances—rare, we hope and believe—deliberate concealment. Our own experience with smallpox confirms this. In susceptible communities every case in the least resembling yellow fever, whether called malarial fever or dengue, should be rigidly screened until the diagnosis is settled beyond peradventure. Of course every breeding place of mosquitoes should be destroyed.

The best account of yellow fever to date that we have found is in the last edition of the admirable work on Hygiene by Dr. Charles Harrington, the able professor of hygiene in Harvard University and secretary of the State Board of Health of Massachusetts. It is as follows:

YELLOW FEVER AND MOSQUITOES.

Since 1693, when yellow fever made its first appearance in this country, there have been no less than ninety-five epidemics of greater or lesser magnitude within the United States. According to Reed and Carroll (Medical Record, October 26, 1901, p. 641), since 1793 the disease has been the cause of no less than 100,000 deaths, 41,348 of which have occurred in New Orleans, 10,038 in Philadelphia and 7,759 in Memphis (1855, 1873, 1878, 1879). Between 1851 and 1883 it caused 23,328 deaths in Rio de Janeiro, where, according to Gouveia (Bulletin Medical, October 12, 1901, p. 861), previous to 1849 it was unknown, being introduced in that year by the Brazil from New Orleans and Havana, and by the Navarre from Bahia. From Rio it spread to all the towns in the bay. Between 1853 and 1900 it caused 35,952 deaths at Havana, where it had flourished continuously for more than a century, and where, after a practical application of the knowledge concerning the method of its dissemination—the outcome of brilliant work on the part of Reed and his associates, of the United States army—it was demonstrated that it could be completely eradicated, and that even though outbreaks should occur on ships arriving from infected ports, removal of the victims to the fever hospital need give rise to no new cases.

Inability to control the spread of the disease has hitherto been due to the fact that the manner of its dissemination was not known, and that all efforts to control it were exerted in the wrong direction, in the belief, now shown to have been unfounded, that fomites, filth and soil conditions were the distributing agencies.

It was in 1848 that Dr. Josiah Nott, of Mobile, suggested that mosquitoes might be responsible for or connected with the spread of yellow fever, but the idea seems to have been received with indifference. In 1881 Dr. Finley, of Havana, announced his theory of mosquito transference, and began his experiments, but it remained for Reed and his associates to demonstrate conclusively that mosquitoes are the principal if not the sole carriers of the exciting cause, and that fomites and filth have absolutely no influence whatever.

The experiments proving both statements are exceedingly interesting. In October, 1900, Reed (Philadelphia Medical Journal, October 27, 1900), reported positive results of experiments conducted by himself and Drs. Carroll, Agramonte and Lazear with mosquitoes, *Stegomyia fasciata*, furnished by Dr. Finley. Carroll was bitten by one that had bitten four yellow-fever patients, alternately severe and mild cases, respectively, twelve, six, four and two days previously. Four days afterward he took to his bed, and on the fifth day his disease was diagnosed as yellow fever. Another subject was bitten by the same mosquito and by three others that had previously bitten patients with the disease, and in seven days he also had the fever.

Dr. Lazear was bitten without result by an infected mosquito on August 16th, and by another, an accidental stranger, on September 13th. In five days he had a chill; on the day following, the diagnosis of yellow fever was made, and in a week the case terminated fatally. Between August 17th and October 13th (fifty-seven days) these three were the only cases which occurred among 1,400 non-immune Americans at Quemados.

On November 20, 1900, an experiment station—Camp Lazear—was established at Columbia Barracks, Cuba, under the direction of Reed, who, with his former associates, continued the work with gratifying results. A very strict quarantine was established, and no non-immune was subjected to mosquito inoculation (with one exception) who had not passed the full period of incubation of yellow fever under close observation, nor was any non-immune who left camp permitted to return under any circumstances. Twenty-one subjects presented themselves, mostly immigrant Spaniards seeking immunity, and the result in each case was positive.

Experiments with fomites (reported in Medical Record, October 26, 1901, and in other American journals) were equally convincing in results. Three large boxes of sheets, pillow-slips, blankets, etc., contaminated with the discharges of yellow fever patients, many of them purposely soiled with black vomit, urine and feces, were placed in a building of 2,800 cubic feet capacity, tightly ceiled and battened, with small windows to prevent thorough circulation of air, and wooden shutters to prevent the disinfectant action of sunlight. The windows were screened with wire gauze and the entrance with a screen door. The articles were unpacked by Dr. Cooke and two privates, and they were shaken, so that the specific agent might be disseminated throughout the room, if it were present. They were then used on the three beds provided, and some were hung about the room and near the beds. For twenty consecutive nights the three slept in the uninviting beds, and every morning they packed the filthy articles back into the boxes, and every evening unpacked and distributed them again. They passed their days in tents in quarantine. During their tour of service, other bedding soiled with the bloody stools of a fatal case was received in a most offensive, stinking condition, and used with the rest. Then other non-immunes repeated the experiment for twenty-one nights, sleeping in the very garments which had been used by patients. Then these subjects were followed by others, who, for fourteen nights out of twenty, slept with pillows covered with towels that had been thoroughly soiled with blood drawn from a case of well-marked yellow fever on the first day of the disease. The result of the exposure of these non-immunes in relays for nine weeks was wholly negative, for not one had the first symptom of yellow fever. Not so, however, in the case of a man who was exposed in a building of similar size, thoroughly ventilated and containing only disinfected articles, plus infected mosquitoes. On De-

cember 15, 1900, fifteen of the insects were set free and he was soon bitten several times. Later he was bitten again, and also on the following day. He contracted the disease; but two men who slept for eighteen nights in a half of the room, which was screened from the other and from the mosquitoes by netting, had no symptoms.

Whatever the nature of the parasite, its life cycle would appear not to need the passage of the parasite through the intermediate host, for Reed (Philadelphia Medical Journal, July 6, 1901) and his associates succeeded in producing the disease by injection of blood drawn from the general circulation. Although the specific *causa morbi* has not been discovered, it appears to be definitely settled that it is not *Sanarelli's B. icterooides*. The conclusions arrived at by Reed, Carroll and Agramonte, and reported to the American Medical Association, are, in brief, as follows: The intermediate host is the *Stegomyia fasciata*, which is capable of transmitting the disease after an interval of about twelve days, or longer, after becoming contaminated by biting a person already sick. The disease can be caused by subcutaneous injection of blood from the general circulation during the first or second day of sickness. Immunity is not conferred by the bite of a mosquito at an earlier period after contamination; but when the disease is produced through the agency of a mosquito the subject is immune against infection by subcutaneous injection of blood. The period of incubation in cases of induced fever varied from forty-one hours to five days and seventeen hours. The disease is not conveyed by fomites, and hence disinfection of a house, except as to mosquitoes, is unnecessary. The spread of the diseases can be controlled most effectually by measures directed to the destruction of mosquitoes and to protection of the sick against them. That not less than twelve days are required for the contaminated mosquito to acquire the power to transmit the disease is borne out by the observations of Dr. H. R. Carter (Medical Record, June 15, 1901, p. 933), who found that in sixteen houses in which ninety-five secondary cases of yellow fever occurred the interval between the first and second cases ranged between twelve and twenty-three days.

The yellow fever mosquito, *Stegomyia fasciata*, formerly known as *Culex fasciatus*, is, in this country, confined principally to the tropical and subtropical regions along the Atlantic Ocean and the Gulf of Mexico, but may be transferred from one region to another by the usual vehicles of travel. It is found in all the principal cities and in some of the smaller towns of Cuba; in Jamaica, Isle of Pines and Nicaragua; in Louisiana, especially in New Orleans; in eastern Texas, in various places in other Southern States, in a number of towns and cities in Brazil, and in certain other hot countries. It is not essentially an American species, for Mr. Theobald, of the British Museum, states that he has received specimens from Italy, Greece, Spain, Portugal and Malta. Its presence in Spain may explain the

occurrence, in 1800, of a very extensive epidemic of yellow fever in the province of Andalusia, and in 1821 of another at Barcelona. Wherever it is found it appears to prefer the larger, populous centers and to be but little common in rural districts.

The *Stegomyia* breeds, like *Culicis*, in small collections of water. Reed and Carroll found the larvae in rain-water barrels, sagging gutters containing rain water, cess-pools, tin cans used for removing excreta, tin cans placed about table legs to prevent inroads of red ants, horse-troughs, leaves of the *Agave Americana*, and generally in any collection of still water. The New Orleans Mosquito Commission (New Orleans Medical and Surgical Journal, January, 1902) found the larvae in 128 of 210 cisterns examined by them. According to this authority, the life cycle of *Stegomyia* is somewhat different from that of other genera, and these differences may necessitate more stringent measures than will suffice for the suppression of *Culicis* and *Anopheles*, for the eggs hatch earlier (ten to twenty-four hours), and the larval (six and one-half to eight days) and pupal stages (two days) are much shorter; so that, full development requires from two to four days less than for *Culex pungens*, and two weeks less than for any species of *Anopheles*. According to Reed and Carroll, the eggs begin to hatch, as a rule, on the third day, and the process may last about a week; the larval stage lasts about seven or eight days, and the pupal stage two days. The shortest time for complete development observed by them was nine and one-half days. At an average temperature of 75 degrees F., or higher, the species multiplies abundantly, but exposure to a lower temperature for even a short time daily causes much retardation, and eggs kept at 68 degrees F. do not hatch. They found that newly-hatched larvae kept at 68 degrees F. develop slowly and require twenty days to reach the pupal stage. Kept at 50 degrees F., they fail to reach the pupal stage.

Although low temperatures are destructive of the larvae, it is otherwise with the eggs, which Reed and Carroll found to be very resistant to the influence of the dryness and cold. They observed that eggs which had been dried on filter-paper and kept ninety days hatched promptly on being placed in water. Dried eggs brought from Havana to Washington in February were easily hatched in May and furnished about 60 per cent. of the usual number of larvae hatched from fresh eggs. Eggs frozen for an hour, thawed out at room temperature and placed in an incubator at 95 degrees F., began to hatch on the sixth day, and furnished active larvae on the eighth; while others frozen for a half-hour on two successive days began to hatch under the same conditions on the third day. Thus, it would appear that eggs may survive the Havana winter, and that the presence of hibernating females is not necessary.

The female *imago*, when impregnated, is generally ready to bite on the second or third day. In New Orleans, according to the Mosquito Commission, the mosquitoes are active during the day, and particu-

larly in the afternoon. In Cuba, Reed and Carroll found them to be especially active from 4 P. M. until midnight, although in captivity the hungry impregnated female will bite at any hour. When freed in a room she does not appear to bite a second time within five to seven days.

Having bitten a yellow-fever patient, it appears that the mosquito is incapable of inducing the disease before twelve days have passed. Those which failed to infect on the eleventh day were successful on the seventeenth. How long the ability to infect continues was not determined, but successful inoculation was brought about as late as fifty-seven days after contamination.

How long the infected mosquito will live is not known. The specimen which conveyed the disease on the fifty-seventh day lived seventy-one days; others have been known to live five months, but the majority die in captivity within five weeks. In a state of freedom their length of life depends largely upon access to water.

At temperatures below 62 degrees F., *Stegomyia* will not bite, and thus Reed accounts for the decline in epidemics of yellow fever at New Orleans in November, when the mean temperature is 61.8 degrees F., and their cessation in December, when it falls to 55.3 degrees.

Preventive Measures.—To avoid epidemics of yellow fever, Reed advocates the prevention of importation of cases of the disease from infected localities, and, when cases do appear, the application of measures to protect the sick from attacks of mosquitoes. Screens should be used for this purpose, and even the dead should be thus protected, for *Stegomyia* will bite even these. All mosquitoes in a house where a case occurs should be caught, and search should be made for them in all the houses in the immediate vicinity. They may be destroyed by fumigation with sulphur-dioxide (one pound of sulphur for each 1,000 cubic feet of air space), which Rosenau (Bulletin No. 6, Hygiene Laboratory of the U. S. M.—H. S., September, 1901) finds far superior for this purpose to formaldehyde, for very small amounts of the dry gas will kill them, even when they are protected by four layers of toweling, while formaldehyde acts feebly and with uncertainty. Pyrethrum (Dalmatian) powder may be burned in the same proportion, and will either kill or stupefy them, so that in three hours they may be swept up and burned.

Non-immunes entering infected houses are advised to rub all exposed surfaces, including the ankles, with spirits of camphor, oil of pennyroyal, or five per cent. menthol ointment; but these agents exert only a temporary protective influence against being bitten.

Of very great importance is the destruction of larvae and of breeding places. The results of systematic work in this direction, and of other preventive measures, are manifest in the immense improvement in the sanitary condition of Havana. Under the direction of Dr. W. C. Gorgas, U. S. A. (Public Health Reports, February 14, 1902, p. 363), the "Stegomyia Brigade" began its work of inspection in

March, 1901, when, in 16,000 houses examined, larvae were found "at the rate of 100 per cent. This does not mean that every house examined had larvae; many houses were found that had several receptacles which contained larvae." During December, 1901, 16,121 houses were inspected, and in but 1.5 per cent. were the larvae found. From May 7th to July 1st (fifty-four days) no case of the disease occurred; then it was introduced from Santiago de Las Vegas, and later from other places; and yet, during July there were but four cases, and in August but eight. During the whole year (1901) there were but eighteen deaths from yellow fever, and twelve of those occurred in January and February, before the work of prevention was begun. During the preceding forty-five years the average number of deaths therefrom was 751.44—the minimum, 51, occurring in 1866.

REVIEW OF DISEASES FOR JULY, 1905.

EIGHTY COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of July the following diseases have been reported from the counties named:

MEASLES.—Anson, many cases; Beaufort, 2; Bladen, Chatham, Craven, Davidson and Duplin, a few each; Durham, 1; Gates, general; Granville, 30; Henderson, a few; Iredell, 1; Onslow; Yancey, 10—14 counties.

WHOOPING-COUGH.—Alamance; Anson, many; Ashe, 6; Cabarrus, 10; Caldwell, 12; Chatham, a few; Craven, a few; Cumberland; Dare, 8; Davidson, a few; Duplin, 8; Forsyth; Guilford, 2; Henderson, several; Onslow; Rowan, 10—16 counties.

SCARLATINA.—Davie, 2; New Hanover, 1.

DIPHTHERIA.—Beaufort, 3; Cabarrus, 2; Duplin, 1; Gaston, 1; Guilford, 1; Pender, 1; Pitt, 3; Randolph, 1; Richmond, 1; Rowan, 3; Surry, 2; Swain, 6—12 counties.

TYPHOID FEVER.—Alamance; Alexander, 5; Anson, a few; Ashe, 8; Beaufort, 5; Bertie, several; Burke, 20; Cabarrus, 2; Caldwell, 49; Camden, 3; Caswell, 1; Catawba, 4; Chatham, 20; Cherokee, 4; Chowan, 3; Clay, 2; Cleveland, many; Craven, 10; Cumberland; Cur-

rituck, 1; Dare, 3; Davidson, 10; Davie, several; Duplin, 2; Durham, 8; Edgecombe, 6; Forsyth, 30; Franklin, several; Gaston, a few; Madison, 10; Martin, several; Polk, 1; Randolph, several; Richmond, 1; Robeson, several; Rowan, 5; Rutherford, 3; Sampson, many; Scotland, a few; Surry, 5; Swain, 10; Vance, a few; Wake, 19; Warren, 8; Washington, 3; Wilkes, 6; Yadkin, many; Yancey, 5—48 counties.

MALARIAL FEVER.—Alamance; Bertie; Brunswick; Camden, Caswell, Currituck, Dare, in all parts; Duplin; Edgecombe, in all parts; Gaston; Gates, 12; Hertford and Hyde, in all parts; Johnston; Martin, in all parts; New Hanover; Northampton; Onslow, in all parts; Pender; Randolph; Richmond, in all parts; Robeson; Sampson; Wake, in all parts; Warren; Washington, in all parts—26 counties.

MALARIAL FEVER, PERNICIOUS.—Hyde, 2; Sampson, a few; Wake, 1.

MALARIAL FEVER, HEMORRHAGIC.—Hyde, 1; Pender, 1.

BOWEL DISEASES.—Alamance; Alexander, in all parts; Anson, in all parts; Burke; Carteret.

CEREBRO-SPINAL MENINGITIS.—Camden.

TONSILLITIS.—Brunswick.

SMALLPOX.—Alamance, 1; Bladen, 6; Cherokee, 2; Craven, 1; Cumberland, 7; Edgecombe, 3; Granville, a few; Harnett, 2; Hyde, 4; New Hanover, 8; Northampton, 1; Pasquotank, several; Robeson, a few; Sampson, 3—14 counties.

CHOLERA, IN CHICKENS.—Gates.

CHOLERA, IN HOGS.—Chowan, Perquimans.

HYDROPHOBIA.—Forsyth, 1.

No diseases reported from Buncombe and Wilson.

No reports received from Columbus, Graham, Greene, Halifax, Jones, Lenoir, Macon, Moore, Pamlico, Perquimans, Rockingham, Stanly, Transylvania, Union, Watauga and Wayne.

SUMMARY OF MORTUARY REPORTS FOR JULY, 1905.**TWENTY-ONE TOWNS.**

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population	92,650	61,500	154,150
Aggregate deaths	137	153	290
Representing temporary annual death-rate per 1,000	17.7	30.0	22.6
<i>Causes of Death.</i>			
Typhoid fever	14	11	25
Malarial fever	0	8	8
Diphtheria	0	1	1
Whooping-cough	1	2	3
Measles	1	2	3
Pneumonia	3	3	6
Consumption	15	18	33
Brain diseases	4	7	11
Heart diseases	8	6	14
Neurotic diseases	0	4	4
Diarrhoeal diseases	30	43	73
All other diseases.....	57	45	102
Accident	3	3	6
Violence	1	0	1
	—	—	—
	137	153	290
Deaths under 5 years.....	51	78	129
Still-born	9	13	22

Mortuary Report for July, 1905.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH-RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.	By Towns.	Deaths under five years.	Still-born.		
		RACES.	By Races.	Total.	By Races.	Total.																			
Charlotte	W. 12,000	20,000	21.0	22.8	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Dr. F. O. Hawley.	C. 8,900		25.5																						
Durham	W. 12,000	18,000	14.0	17.3																					
Dr. T. A. Mann.	C. 6,000		24.0																						
Edenton	W. 1,200	3,000	20.0	16.0																					
Dr. T. J. Hoskins.	C. 1,800		18.3																						
Elizabeth City	W. 5,000	8,000	26.4	30.0	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. H. D. Walker.	C. 3,000		36.0																						
Fayetteville	W. 2,500	4,800	9.6	17.5																					
Dr. A. S. Rose.	C. 2,300		26.1																						
Goldsboro	W. 3,500	6,100	6.8	13.8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Robt. A. Creech, H. O.	C. 2,600		23.1																						
Greensboro	W. 6,100	10,100	27.5	29.7	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Jno. S. Michaux, C. C.	C. 4,000		33.0																						
Lexington	W. 3,000	3,600	4.0	3.3																					
J. H. Moyer, Mayor.	C. 600		0.0																						
Marion	W. 800	1,200	15.0	10.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. B. L. Ashworth.	C. 400		0.0																						
Oxford	W. 1,250	2,500	28.8	38.4																					
Dr. S. D. Booth.	C. 1,250		32.0																						
Raleigh	W. 9,000	15,000	13.3	17.7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T. P. Sale, Clerk B. H.	C. 6,000		24.0																						
Salem	W. 3,300	3,650	7.3	9.9																					
S. E. Butner, Supt. H.	C. 350		34.3																						
Salisbury	W. 3,900	6,400	27.7	22.5																					
Dr. H. T. Trantham.	C. 2,500		14.4																						
Southport	W. 900	1,400	26.7	25.7																					
Dr. J. A. Dosher.	C. 500		24.0																						
Tarboro	W. 1,800	2,500	20.0	28.8																					
Dr. S. N. Harrell.	C. 700		51.4																						
Wadesboro	W. 1,000	1,700	36.0	35.3																					
Dr. J. H. Bennett.	C. 700		34.3																						
Washington	W. 3,000	5,900	4.0	22.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1
Dr. John G. Blount.	C. 2,900		44.8																						
Waynesville	W. 1,600	2,000	30.0	24.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
Dr. Thos. Springfield.	C. 400		0.0																						
Wilmington	W. 11,000	21,000	24.0	26.8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10
Dr. Chas. T. Harper.	C. 10,000		30.0																						
Wilson	W. 3,800	6,800	6.3	8.8																					
Dr. W. S. Anderson.	C. 3,000		12.0																						
Winston	W. 6,000	10,500	10.0	35.4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. J. L. Hanes.	C. 4,500		69.3																						

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance Dr. George W. Long.
 Alexander Dr. C. J. Carson.
 Alleghany Dr. Robt. Thompson.
 Anson Dr. J. H. Bennett.
 Ashe Dr. Manley Blevins.
 Beaufort Dr. John G. Blount.
 Bertie Dr. H. V. Dunstan.
 Bladen Dr. L. B. Evans.
 Brunswick Dr. J. Arthur Dosher.
 Buncombe Dr. D. E. Sevier.
 Burke Dr. J. L. Laxton.
 Cabarrus Dr. R. S. Young.
 Caldwell Dr. C. L. Wilson.
 Camden Dr. C. G. Ferebee.
 Carteret Dr. F. M. Clarke.
 Caswell Dr. S. A. Malloy.
 Catawba Dr. Geo. H. West.
 Chatham Dr. T. A. Kirkman.
 Cherokee Dr. J. A. Abernathy.
 Chowan Dr. T. J. Hoskins.
 Clay Dr. J. M. Sullivan.
 Cleveland Dr. B. H. Palmer.
 Columbus Dr. H. B. Maxwell.
 Craven Dr. Joseph F. Rhem.
 Cumberland Dr. A. S. Rose.
 Currituck Dr. H. M. Shaw.
 Dare Dr. W. B. Fearing.
 Davidson Dr. Joel Hill.
 Davie Dr. M. D. Kimbrough.
 Duplin Dr. A. J. Jones.
 Durham Dr. T. A. Mann.
 Edgecombe Dr. S. N. Harrell.
 Forsyth Dr. S. F. Pfohl.
 Franklin Dr. R. F. Yarborough.
 Gaston Dr. H. F. Glenn.
 Gates Dr. W. O. P. Lee.
 Graham Dr. R. J. Orr.
 Granville Dr. S. D. Booth.
 Greene Dr. W. B. Murphy, Jr.
 Guilford Dr. Edmund Harrison.
 Halifax Dr. I. E. Green.
 Harnett Dr. L. J. Arnold.
 Haywood Dr. J. R. McCracken.
 Henderson Dr. J. G. Waldrop.
 Hertford Dr. C. F. Griffin.
 Hyde Dr. E. H. Jones.
 Iredell Dr. M. R. Adams.
 Jackson Dr. William Self.
 Johnston Dr. Thel Hooks.

Jones Dr. N. G. Shaw.
 Lenoir Dr. C. L. Pridgen.
 Lincoln Dr. John W. Saine.
 McDowell Dr. B. L. Ashworth.
 Macon Dr. W. A. Rogers.
 Madison Dr. W. J. Weaver.
 Martin Dr. W. H. Harrell.
 Mecklenburg Dr. C. S. McLaughlin.
 Mitchell Dr. Virgil R. Butt.
 Montgomery Dr. J. B. Shamburger.
 Moore Dr. Gilbert McLeod.
 Nash Dr. J. P. Battle.
 New Hanover Dr. W. D. McMillan.
 Northampton Dr. H. W. Lewis.
 Onslow Dr. Cyrus Thompson.
 Orange Dr. C. D. Jones.
 Pamlico Dr. H. P. Underhill.
 Pasquotank Dr. J. B. Griggs.
 Pender Dr. R. J. Williams.
 Perquimans Dr. C. C. Winslow.
 Person Dr. J. A. Wise.
 Pitt Dr. Joseph E. Nobles.
 Polk Dr. C. J. Kenworthy.
 Randolph Dr. A. M. Bulla.
 Richmond Dr. L. D. McPhail.
 Robeson Dr. H. T. Pope.
 Rockingham Dr. Sam Ellington.
 Rowan Dr. J. S. Brown.
 Rutherford Dr. E. B. Harris.
 Sampson Dr. J. O. Matthews.
 Scotland Dr. A. W. Hamer.
 Stanly Dr. V. A. Whitley.
 Stokes
 Surry Dr. John R. Woltz.
 Swain Dr. R. L. Davis.
 Transylvania Dr. C. W. Hunt.
 Tyrrell
 Union Dr. Henry D. Stewart.
 Vance Dr. John Hill Tucker.
 Wake Dr. J. W. McGee, Jr.
 Warren Dr. P. J. Macon.
 Washington Dr. W. H. Ward.
 Watauga Dr. H. McD. Little.
 Wayne Dr. William Spicer.
 Wilkes Dr. W. P. Horton.
 Wilson Dr. W. S. Anderson.
 Yadkin Dr. M. A. Royall.
 Yancey Dr. J. B. Gibbs.



BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., <i>Pres.</i> , Wilmington.	T. E. ANDERSON, M. D.--Statesville.
S. WESTRAY BATTLE, M. D.--Asheville.	J. HOWELL WAY, M. D.--Waynesville.
HENRY W. LEWIS, M. D.-----Jackson.	W. O. SPENCER, M. D.----Winston-Salem.
W. P. IVEY, M. D. -----Lenoir.	J. L. LUDLOW, C. E. ----Winston-Salem.
RICHARD H. LEWIS, M. D., <i>Secretary and Treasurer</i> , Raleigh.	

VOL. XX.

SEPTEMBER, 1905.

No. 6.

LEST WE FORGET.

The rather unusual prevalence of diphtheria at the present time, together with the fact that the schools are opening throughout the State, suggests to us the advisability of calling attention as forcibly as we can to certain provisions of the Act Relating to the Board of Health, which, if heeded, would save much sickness and many lives. This act our Supreme Court has referred to as a "well-considered law," and we feel sure that the importance and reasonableness of the requirements to which we propose to call attention cannot be denied. But the trouble is to secure the observance of these requirements. The responsibility in this matter rests upon all householders, and especially upon physicians, county superintendents of public instruction, superintendents of graded schools, the school committees of public schools, the heads of private schools, and all teachers.

Conditions more favorable to the spread of infectious or contagious diseases cannot be imagined than those found in a school. This is especially true of diphtheria and scarlet fever, to which, being essentially diseases of childhood, the pupils are peculiarly susceptible. The children not only come into contact with one another, but they are kept crowded together for hours in rooms all too frequently badly ventilated. These conditions practically cannot be entirely remedied, and so we must look for protection to the observance of certain simple and reasonable precautions that are not only within the reach of all, but are made positively obligatory by the law. No disease can spread in a school unless it is introduced by some child actually the subject of it or carrying the germs in his clothes. Of course, a child actually and manifestly sick will not be allowed by his parents to attend

school, but in some mild attacks of diphtheria, especially, the child is not manifestly sick enough to be kept at home, although none the less a source of infection. It is for this reason, as well as because of the danger of carrying the germs in their clothes, that children of families in which a case of infectious disease exists are not allowed to attend school in less than two weeks after the death or recovery of such case, and then only upon presentation of a certificate from the family physician or health officer. In this way the State attempts to prevent the sowing of the seed of disease in a soil ready for its reception and propagation. This is the only way to prevent a harvest of sickness and death that could have been avoided.

One would think that people would not be willing to jeopardize the lives of their neighbors' children, and most people would not knowingly do it, but there are some, we regret to know, so utterly selfish that rather than keep their own children away from school they would run the risk of infecting a whole neighborhood.

Prompt notification of the presence in a family of a case of infectious disease is incumbent upon both the householder and the attending physician—upon them rests this grave responsibility, and as the BULLETIN is sent to all physicians, we earnestly entreat them not to fail in this duty.

We also make a special request of county superintendents of public instruction, who are in touch with all public school teachers, to call their attention to the law, and to urge upon them the importance of their seeing that it is carried out. We would commend to county superintendents of health, and city health officers, the form of notification, for both householders and teachers, printed on postal card, used in Wilmington. They are as follows:

OFFICE OF SUPERINTENDENT OF HEALTH.

WILMINGTON, N. C., 190. .

Mr.

No. Street.

Dear

The quarantine for at your residence is discontinued from this date. The children of the household cannot return to school until. 190. . i. e., fourteen days from the above date. Any violation of this instruction will be punished in accordance with provisions of Public Laws 1893, chapter 214, sections 11 and 12.

.

Superintendent of Health.

OFFICE OF SUPERINTENDENT OF HEALTH.

WILMINGTON, N. C., 190 . .

. School.

Dear

I hereby notify you that the quarantine established at the residence of Mr. No. Street, for has been discontinued. The children from that house cannot return to school until 190 . . . i. e., fourteen days after the discharge of quarantine. Please report to this office any violation of the order. See chapter 214, Public Laws 1893, sections 11 and 12.

.
Superintendent of Health.

The sections of the law (chapter 214, Laws of 1893, as amended in 1901) bearing particularly upon this subject, are as follows:

SEC. 9. When a householder knows that a person within his family is sick with either of the diseases enumerated in section eight (smallpox, diphtheria, scarlet fever, etc.), he shall immediately give notice thereof to the health officer or mayor, if he resides in a city or incorporated town, otherwise to the county superintendent of health, and upon the death or recovery or removal of such person, the rooms occupied and the articles used by him shall be disinfected by such householder in the manner indicated in section eight. Any person neglecting or refusing to comply with any of the above provisions shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than one dollar nor more than fifty dollars.

SEC. 10. When a physician knows that a person whom he is called to visit is infected with smallpox, diphtheria, scarlet fever, typhus fever, yellow fever or cholera, he shall immediately give notice thereof to the health officer or mayor, if the sick person be in a city or incorporated town, otherwise to the county superintendent of health, and if he refuses or neglects to give such notice of it in twenty-four hours he shall be guilty of a misdemeanor and shall be fined for each offense not less than ten nor more than twenty-five dollars. And it shall be the duty of the said county superintendent, health officer or mayor receiving such notice of the presence of a case of smallpox, yellow fever, typhus fever or cholera within his jurisdiction to communicate the same immediately by mail or telegraph to the Secretary of the State Board of Health. A failure to perform this duty for twenty-four hours after the receipt of the notice shall be deemed a misdemeanor, and shall subject the delinquent upon conviction to a fine of not less than ten nor more than twenty-five dollars.

SEC. 11. * * * The boards of health of cities and towns wherever organized, and where not, the mayors of the same, and in other cases the county superintendent of health, shall give the school com-

mittee of the city or town, the principals of private schools and the superintendent of public instruction of the county, when the schools are in session, notice of all such cases of contagious diseases reported to them according to the provisions of this act. A failure to perform this duty for twenty-four hours after the receipt of the notice shall be deemed a misdemeanor, and subject the delinquent upon conviction to a fine of not less than ten nor more than fifty dollars.

SEC. 12. The school committees of public schools, superintendents of graded schools and the principals of private schools shall not allow any pupil to attend the school under their control while any member of the household to which said pupil belongs is sick of either small-pox, diphtheria, measles, scarlet fever, yellow fever, typhus fever or cholera, or during a period of two weeks after the death, recovery or removal of such sick person; and any pupil coming from such household shall be required to present to the teacher of the school the pupil desires to attend a certificate from the attending physician, city health officer or county superintendent of health of the facts necessary to entitle him to admission in accordance with the above regulations. A wilful failure on the part of any school committee to perform the duty required in this section shall be deemed a misdemeanor, and upon conviction shall subject each and every member of the same to a fine of not less than one nor more than twenty-five dollars: *Provided*, that the instructions in accordance with the provisions of this section given to the teachers of the schools within twenty-four hours after the receipt of each and every notice shall be deemed performance of duty on the part of the school committee. Any teacher of a public school and any principal of a private school failing to carry out the requirements of this section shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than one nor more than twenty-five dollars.

REVIEW OF DISEASES FOR AUGUST, 1905.

SEVENTY-EIGHT COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of August the following diseases have been reported from the counties named:

MEASLES.—Anson, several cases; Beaufort, 2; Gates, 15; Granville, 20; Martin, several; Mecklenburg; Person, a few; Pitt, a few; Vance, many; Yancey, a few—10 counties.

WHOOPING-COUGH.—Alamance; Anson, many; Cumberland; Duplin, several; Gaston, a few; Henderson, 30; Martin, many; Mecklenburg; Person, a few; Pitt; Richmond, epidemic; Rockingham; Rowan, 5; Union, epidemic; Vance, a few; Wake, 12; Yadkin, many—17 counties.

SCARLATINA.—Cleveland, 2; Cumberland, 2; Forsyth, 4; Guilford, 1; New Hanover, 2; Orange, 2; Person, 1; Rockingham, a great many; Wilkes—9 counties.

DIPHTHERIA.—Beaufort, 3; Bertie, 2; Cabarrus, 1; Carteret, 2; Cumberland, 45 or 50 in one section; Duplin, 8; Forsyth, 3; Gaston, a few; Guilford, 7; Halifax, 26; Haywood, 4; Henderson, 1; Hertford, 4; Iredell, 1; Johnston, 1; McDowell, 4; Martin, several; Montgomery, 1; New Hanover, 1; Onslow, 10; Pender, 8; Pitt, 6; Rockingham; Rowan, 4; Rutherford, 2; Surry, 2; Swain, 10; Wake, 5; Warren, 1; Wilkes, 3; Wilson, 4—31 counties.

TYPHOID FEVER.—Alamance; Alleghany; Anson, a few; Beaufort, 5; Brunswick, 1; Burke, 6; Cabarrus, 2; Camden, 2; Caswell, 5; Catawba, 4; Cleveland, many; Columbus, 7; Craven, 3; Cumberland; Dare, 5; Davidson; Duplin, 4; Durham, 9; Edgecombe, many; Forsyth, 18; Franklin, several; Gates, 1; Granville, 8; Greene, 12; Guilford, 5; Harnett, 4; Haywood, 8; Hertford, a few; Iredell, 2; Jackson, 16; Johnston, several; Lincoln, 3; McDowell, 5; Martin, many; Mecklenburg; Montgomery, 5; Nash, 7; New Hanover, several; Northampton, a few; Onslow; Orange, 6; Pasquotank; Pender, several; Pitt, 20; Randolph, 10; Richmond, a few; Robeson, several; Rockingham, in all parts; Rowan, 12; Sampson, a few; Surry, 4; Swain, a few; Union, 25; Vance, a very few; Wake, 5; Warren, 12; Watauga, 3; Wilkes, 8; Yadkin, many; Yancey, several—62 counties.

MALARIAL FEVER.—Alamance, Bertie, Bladen, Brunswick, in all parts; Cleveland, Columbus, Currituck, many; Dare, Edgecombe, in all parts; Gaston; Gates, 9; Granville, several; Halifax, Hyde, in all parts; Johnston; Lincoln; Martin, in all parts; Montgomery; Onslow, Pender, in all parts; Randolph; Richmond, in all parts; Sampson; Wake, all parts; Warren; Washington, in all parts—29 counties.

MALARIAL FEVER, PERNICIOUS.—Brunswick, 2; Randolph, 1; Sampson, a few; Wake, 1.

MALARIAL FEVER, HEMORRHAGIC.—Camden, 3; Onslow.

BOWEL DISEASES.—Burke, a few; Camden; Currituck, many; Gates; Randolph, in all parts; Sampson, many—5 counties.

CEREBRO-SPINAL MENINGITIS.—Camden, 1.

PNEUMONIA.—Cabarrus, 2; Davidson; Duplin, 1; Jackson, 4; Martin, many—5 counties.

SMALLPOX.—Columbus, 1; Craven, 3; Cumberland, 5; Henderson, 4; Hertford, 14; Mecklenburg, 1; New Hanover, 8; Pender, a few; Richmond, 5; Sampson, 7; Washington, 1—11 counties.

CHOLERA, IN HOGS.—Martin, Onslow.

No diseases reported from Buncombe, Davie, Macon, Polk, Scotland and Transylvania.

No reports received from Alexander, Ashe, Caldwell, Chatham, Cherokee, Chowan, Clay, Graham, Jones, Lenoir, Madison, Mitchell, Moore, Pamlico, Perquimans, Stanly and Wayne.

SUMMARY OF MORTUARY REPORTS FOR AUGUST, 1905.

TWENTY-TWO TOWNS.

	White.	Col'd.	Total.
Aggregate population	96,350	62,550	158,900
Aggregate deaths	123	149	272
Representing annual death-rate per 1,000....	15.3	28.4	205
<i>Causes of Death.</i>			
Typhoid fever	19	7	26
Scarlet fever	1	1	2
Malarial fever	2	11	13
Diphtheria	2	0	2
'Whooping-cough	6	1	1
Pneumonia	4	4	8
Consumption	9	17	26
Brain diseases	2	10	12
Heart diseases	10	8	18
Neurotic diseases	2	5	7
Diarrhoeal diseases	20	28	48
All other diseases	39	56	95
Accident	5	0	5
Suicide	1	1	2
Violence	1	0	1
	123	149	272
Deaths under 5 years.....	35	63	98
Still-born	7	12	19

MORTUARY REPORT FOR AUGUST, 1905.

TOWNS AND REPORTERS.	POPULA- TION.		TEMPORARY ANNUAL DEATH-RATE PER 1,000.																					
	RACES.	By Races.	Total.	By Races.	Total.	Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Violence.	TOTAL DEATHS.	Deaths under five years.	Still-born.	
Charlotte{ Dr. F. O. Hawley.	W. 12,000	20,000	12.0	16.8	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	28	4	1
C. 8,000	24.0				1																16	5	3	
Durham{ Dr. T. A. Mann.	W. 12,000	18,000	15.0	18.7	2	1	1	1	1	1	1	1	1	1	1	2	2	1	6	3	15	28	4	1
C. 6,000	26.0																				13	28	4	
Elizabeth City{ Dr. H. D. Walker.	W. 5,000	8,000	9.6	22.5	1		1	1	1	1	1	1	1	1	1	2	2	1	2	6	11	15	10	1
C. 3,000	44.0																				11	15	10	
Fayetteville{ Dr. A. S. Rose.	W. 2,500	4,800	9.6	20.0	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	8	3	1
C. 2,300	31.3																				6	18	3	
Goldsboro{ Robt. A. Creech, Esq.	W. 3,500	6,100	20.6	35.4	1		1	1	1	1	1	1	1	1	1	1	1	1	3	1	6	18	6	1
C. 2,600	55.4																				12	28	5	
Greensboro{ Jno. S. Michaux, C. C.	W. 7,000	12,000	30.9	29.7	3	1	1	1	1	1	1	1	1	1	1	2	2	1	6	4	18	25	10	1
C. 5,000	16.8																				7	2	2	
Lexington{ J. H. Moyer, Mayor.	W. 3,000	3,600	0.0	0.0	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
C. 600	0.0																							
Marion{ Dr. B. L. Ashworth.	W. 800	1,200	15.0	10.0	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
C. 400	0.0																							
Monroe{ Dr. Jno. M. Blair.	W. 2,000	2,800	24.0	17.1	1		2	2	2	2	2	2	2	2	2	2	2	2	1	4	0	4	0	0
C. 800	0.0																							
Oxford{ Dr. S. D. Booth.	W. 1,250	2,500	19.2	19.2	1		1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	1	1	1
C. 1,250	19.2																							
Raleigh{ T. P. Sale, Clerk B. H.	W. 9,000	15,000	10.7	20.0	1		1	1	1	1	1	1	1	1	1	1	1	1	5	8	25	2	1	
C. 6,000	34.0																				17	9	1	
Salem{ S. E. Butner, Supt. H.	W. 3,300	3,650	7.3	6.6	1		1	1	1	1	1	1	1	1	1	1	1	1	2	2	0	2	2	2
C. 350	0.0																							
Salisbury{ Dr. H. T. Trantham.	W. 3,900	6,400	27.7	31.9	2	1	1	1	1	1	1	1	1	1	1	2	2	3	2	9	17	2	1	
C. 2,500	38.4																				8	17	1	
Southport{ Dr. J. A. Dosher.	W. 900	1,400	26.7	42.8	1		1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	2	1
C. 500	72.0																							
Tarboro{ Dr. S. N. Harrell.	W. 2,000	2,500	0.0	14.4	1		1	1	1	1	1	1	1	1	1	1	1	2	1	0	3	3	0	
C. 500	72.0																							
Wadesboro{ Dr. J. H. Bennett.	W. 1,000	1,700	48.0	35.7	2	1	1	1	1	1	1	1	1	1	1	1	1	1	4	5	1	1	1	
C. 700	17.1																							
Washington{ Dr. John G. Blount.	W. 3,100	6,000	23.3	24.0	1	1	1	1	1	1	1	1	1	1	1	3	2	1	1	6	12	2	5	
C. 2,900	24.8																							
Waynesville{ Dr. Thos. Stringfield.	W. 1,600	2,000	0.0	0.0	1		1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	
C. 400	0.0																							
Weldon{ J. T. Gooch, Mayor.	W. 700	1,450	0.0	16.5	1		1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	
C. 750	32.0																							
Wilmington{ Dr. Chas. T. Harper.	W. 11,000	21,000	24.0	29.7	2	1	1	1	1	1	1	1	1	1	1	2	10	1	22	52	7	4	4	
C. 10,000	36.0																			30	10	4		
Wilson{ Dr. W. S. Anderson.	W. 3,800	6,800	6.3	14.1	1		1	1	1	1	1	1	1	1	1	2	3	1	1	6	8	3	1	
C. 3,000	24.0																							
Winston{ Dr. J. L. Hanes.	W. 7,000	12,000	6.8	10.0	2		1	1	1	1	1	1	1	1	1	1	1	3	1	4	10	3	1	
C. 5,000	14.4																				6	3	1	

N. B.—The reporters for the cities and towns printed in **BLACK TYPE** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. George W. Long.	Jones.....	Dr. N. G. Shaw.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. John W. Saine.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. L. Ashworth.
Ashe.....	Dr. Manley Blevins.	Macon	Dr. W. A. Rogers.
Beaufort	Dr. John G. Blount.	Madison	Dr. W. J. Weaver.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. Arthur Dosher.	Mitchell.....	Dr. Virgil R. Butt.
Buncombe	Dr. D. E. Sevier.	Montgomery	Dr. J. B. Shamburger.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod
Cabarrus.....	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. C. L. Wilson.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. C. G. Ferebee.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clarke.	Onslow.....	Dr. Cyrus Thompson.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. J. H. Taylor.	Pasquotank	Dr. J. B. Griggs.
Cherokee.....	Dr. J. A. Abernathy.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. J. M. Sullivan.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. Joseph E. Nobles.
Columbus.....	Dr. H. B. Maxwell.	Polk	Dr. C. J. Kenworthy.
Craven.....	Dr. Joseph F. Rhem.	Randolph	Dr. A. M. Bulla.
Cumberland.....	Dr. A. S. Rose.	Richmond.....	Dr. L. D. McPhail.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. J. S. Brown.
Davie	Dr. M. D. Kimbrough.	Rutherford.....	Dr. E. B. Harris.
Duplin	Dr. A. J. Jones.	Sampson	Dr. J. O. Matthews.
Durham	Dr. T. A. Mann.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. S. N. Harrell.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. S. F. Pfohl.	Stokes	
Franklin	Dr. R. F. Yarborough.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. H. F. Glenn.	Swain.....	Dr. R. L. Davis.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. M. J. Maxwell.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. Henry D. Stewart.
Greene.....	Dr. W. B. Murphy, Jr.	Vance.....	Dr. John Hill Tucker.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. W. McGee, Jr.
Halifax	Dr. I. E. Green.	Warren.....	Dr. P. J. Macon.
Harnett.....	Dr. L. J. Arnold.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. R. McCracken.	Watauga.....	Dr. H. McD. Little.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. William Spicer.
Hertford	Dr. Robert W. Smith.	Wilkes.....	Dr. W. P. Horton.
Hyde.....	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. M. R. Adams.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. William Self.	Yancey	Dr. J. B. Gibbs.
Johnston	Dr. Thel Hooks.		

BULLETIN

OF THE

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VOL. XX.

OCTOBER, 1905.

No. 7.

THE PHYSICIAN'S PARAMOUNT DUTY TO THE PATIENT AND FAMILY IN PULMONARY TUBERCULOSIS.

BY C. P. AMBLER, M. D., ASHEVILLE, N. C.

(Read before the Anti-Tuberculosis League, Atlanta, April 18, 1905. Referred by motion to the press with request to reproduce same as a means of educating the public to the necessity of early diagnosis, and careful observation of directions given by physician.)

[We earnestly commend to our readers, especially of the medical profession, Dr. Ambler's paper. We were present at the Atlanta meeting of the Anti-Tuberculosis League, and we unhesitatingly adjudged it the best we heard. It goes to the very heart of the problem of preventing and curing tuberculosis, and coincides with the views heretofore set forth in these columns.—EDITOR.]

As a profession we have for generations practiced medicine in so liberal a sense of the word that we have been far too quick to prescribe and in the bustle and hurry of active practice have failed to grant to the patient the time that his case generally requires and should be accorded. We are to be censured for having taught the public to believe that each disease has its medicine or "cure." Our preceptor believed in "placeboes" and prescribed such in numerous instances where no medicine was really indicated. This practice is in great part dying out, but as we have discarded this foolishness we have fallen into the greater error of depending upon drugs or so-called or considered "specifics."

It is an unfortunate fact and disgrace to our profession, both city and country, that a large number of the consumptives living among us to-day have been "treated" for months, and in many instances for years, before the true nature of their malady was recognized; that

symptoms which should have been recognized and should at once have aroused suspicion of tuberculosis, have either been neglected or attributed to other causes. Thus, during the early stages of the disease, by our own carelessness, have we, in thousands of cases, robbed the trusting patient of every chance for recovery, while we plied him with "tonics" and cough remedies.

Thanks to the medical requirements now enacted by all our States, this practice is not the result of ignorance on the part of our profession. It is, however, to our discredit that it can be traced too often to carelessness. We have not taken the time to thoroughly investigate: in malarious districts, slight chills and fever have been attributed to ague, while a blood examination would have shown this not to be the case; coughs have been bronchial and syrups prescribed; blood-spitting has "come from the throat" because the examiner could not detect the presence of disease in the chest by placing his ear against the chest, fore and back, over several thicknesses of clothing. Temperature taken once a day for several days has been regarded as always normal, because it was so found at the time taken: loss of weight has been indication for tonics: suppressed menstruation has meant uterine trouble; a dry hacking cough has meant laryngitis, and pains in the chest inter-costal neuralgia.

But rarely indeed do physicians point out to-day to the head of the family in which occurs a case of tuberculosis the necessity of examining each and every member of the family periodically for several years after the initial case has died or recovered. And yet, right here is where the most brilliant results are being accomplished by men who are careful and thoughtful.

It is not the purpose of this paper to censure the profession, but as this association is organized for the prevention of consumption, I wish to place myself upon record in your halls as advocating that the best means of "preventing consumption" is to discover the tuberculous disease in the patient before the stage of consumption has been reached.

Consumptives are persons dying with a tuberculous disease. Not one case in five hundred fails to consult a physician on account of some symptom or other, long before the disease is far advanced. Tuberculosis *is not* the fatal disease that past generations have regarded it. It can be proven that a great number who develop the disease recover without discovering that they have ever had it. Formerly it was rarely discovered before the patient was in a dying condition. Such cases promptly died, and do to-day, with the result that the laity has grown, or been taught by us, to believe that the disease means death.

We are awakening in this country to the realization that this disease is the greatest destroyer among us to-day. One in every six or seven of our deaths is due either directly or indirectly to this disease. Of a given number of cases which have occurred in your

practice individually, in how many instances did you discover the disease before the destruction of lung tissue had already occurred? Go further—in those cases not discovered early, was it not due to one of two facts, either the patient did not consult you until the disease was advanced, or, as you look back, was not your own carelessness and hurry the cause of the delayed diagnosis?

Our States may legislate, our National Government may investigate, our philanthropists give their millions, and as physicians we may organize such societies as this, but in the end the only way it can at present be logically met is by the physician individually.

If we as physicians would recognize the disease earlier the battle would be over half won. It will continue to be thus; if we fail to do our duty in the future, as our confreres have done in the past, the disease will go on unchecked.

Next to an early diagnosis, the most important point for the physicians is the instruction of the patient. So long as the cowardly evasion of the truth to the patient be continued by our profession, we must expect to see the disease become more wide-spread. The profession over the country is not as a rule telling the patient the truth. Those of us who reside at health resorts find that only those men in our profession who are giving this disease careful and close consideration tell the patient the truth and instruct him regarding the disease, his danger to himself and to others, and point out the necessity for recovery. The rank and file of our profession, especially in the rural communities, apparently believe that the truth will damage the patient: and when they have carried him the whole length of drug and dope administration, have robbed him of every opportunity for recovery by not instructing him and pointing out the path to recovery, they send him away from home in a dying condition, loaded with stinking and nauseating drugs and directions to eat and exercise, to keep away from resort doctors and report once a month to them by letter.

The truth told the patient, with explanations and proper instructions, does not harm him. In fact, in these two points lies the secret of successful treatment of this disease. Our first duty to the patient from my point of view is to tell him the truth, and then take the time to instruct him: to point out wherein he improves; to teach him wherever he is a source of danger to himself as well as others, and especially to show him this danger is as nothing, practically, if your directions be carefully followed and carried out. With the interest in this disease now developing, we are going to the extreme; as we have groped in the dark and seen the multitudes die in the past; die, yes, in many instances because we considered the disease fatal, not realizing that the fault lay in ourselves in not discovering the true nature of the trouble earlier; die, yes, as we stand apart with the friends and look upon it as a part of the ways of God, our inaction,

our do-nothingness, our know-nothingness of those days was one extreme, and now we are educating the public to another.

Already the consumptive is an outcast, publicly to be shunned. The average consumptive *should* be kept from public places and gatherings; but now, when it becomes known that a person has tuberculosis, be it ever so slight, he is in many quarters looked upon as a leper, to be avoided as death itself. This is unjust to the patient, and is the result of telling only part of the truth by the physician and those who are waging the crusade against the disease.

The patient, his friends, his family and the public generally should know wherein he is in danger to himself and to others. The family should receive instructions from the physician for their safety, and as long as the patient observes the rules laid down he should not be ostracised, or made to feel that he has no place among men. The secret of prophylaxis and successful treatment lies in the instructions given by the physician, together with the hearty co-operation of the patient and family.

The success met with in institution treatment and the administration of so-called specifics (which require the constant attendance of the physician) is the result of the constant supervision, careful instructions and management of the patient, far more than any other means, or the specific applied. This being true in the institution, similar methods should be applied to our outside cases to the fullest possible extent. The patient with a good heart, a good stomach, an early diagnosis made and sufficient means of support for several months without worry, violent or prolonged exertion, will permanently recover in ninety per cent. of the cases.

The day may come when we can as successfully vaccinate against tuberculosis as we do to-day against small-pox. Until this day arrives prevention will mean prophylaxis: Prophylaxis will mean three things:

Earlier diagnosis,

Instruction of patient,

Instruction of family and friends.

This practically brings the whole matter home to the physician as it has been in the past: Will we go on as we have done in the past and depend upon our drugs to cure, while our uninformed and slowly rotting fellow-creature spreads the seeds of his accursed disease in the home, on our streets, in our public places of meeting and worship; while we, as physicians, raise no protest when even our butchers and our bakers while they themselves are suffering from the disease are allowed to handle and sell to the public the foodstuffs of life?

Just now, the properfad is an outdoor life: no one who understands the disease will oppose a life in the open air, but here, as elsewhere, the advice of the physician will be everything if success is to reward our effort. It will not do to tell your patient to go to Colorado, New Mexico or North Carolina and live out of doors. To live an intelli-

gent outdoor life and not run great risks of furthering the trouble rather than lessening it, is a question requiring the most careful consideration, preparation and intelligence.

Our average citizen has not this knowledge, and unless we go into detail and *explain, instruct, surprise, caution, encourage* and keep up the same everlasting vigilance, we will fail here as we have so often failed in the past when using other means, and neglected the one great question of all.

This convention will doubtless appoint a committee to draft resolutions embodying our idea as to the best means of preventing tuberculosis and consumption.

As a summary of my paper and in conclusion, I wish to present to this body a few points, which, in my opinion, should be embodied in such resolutions, if adopted:

- 1st. Tuberculosis is not the fatal disease commonly believed.
- 2d. While communicable, it can practically be made innocuous by the proper course on the part of the patient.
- 3d. The chief cause of the large mortality is late diagnosis.
- 4th. Late diagnosis is caused by indifference of patient to early symptoms and carelessness on the part of the physician consulted.
- 5th. By thorough, systematic instruction of the patient better results can be accomplished than by medication.
- 6th. Instruction of patient, family and friends and close observance on their part of the rules laid down will practically rob the disease of its method and means of extending.

REVIEW OF DISEASES FOR SEPTEMBER, 1905.

EIGHTY-TWO COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of September the following diseases have been reported from the counties named:

MEASLES.—Anson; Caldwell, 42 cases; Davie, several; Person; Robeson, 10; Rockingham; Transylvania; Yancey, 2—8 counties.

WHOOPING-COUGH.—Alamance; Anson; Caldwell, 58; Davie, several; Haywood; Iredell, 1; Madison, in all parts; Mecklenburg; Mitchell, many cases; Robeson, 4; Rockingham, a few; Rowan, 15; Vance, a few; Wake, 30; Warren, a few; Wilkes, 10; Wilson, in all parts; Yadkin, several—18 counties.

SCARLATINA.—Buncombe, 2; Burke, 1; Caldwell, 4; Cleveland, 2; Cumberland, 2; Edgecombe, 1; Forsyth, 4; Guilford, 2; Macon, 4; Orange, 3; Rockingham, many; Rowan, 2; Wilkes, 2; Wilson, 2—14 counties.

DIPHTHERIA.—Beaufort: Bladen, a few; Buncombe, 3; Cabarrus, 4; Caldwell, 1; Carteret, 3; Catawba, 8; Columbus, 5; Craven, 1; Cumberland, 29; Duplin, 10; Edgecombe, several; Forsyth, 6; Gaston, 3; Gates, 1; Granville, 2; Greene, 6; Guilford, 8; Haywood, 10; Henderson, 2; Johnston, several; McDowell, 3; Macon, 15; Mecklenburg; Mitchell, many; Nash, 1; New Hanover, 9; Onslow; Pasquotank; Perquimans, 4; Pitt, 8; Rockingham, a few; Rowan, 4; Sampson, 12; Surry, 1; Wake, 15; Warren, 14; Watanga, 3; Wayne, 15; Wilkes, 5; Yancey—41 counties.

TYPHOID FEVER.—Alamance; Alexander, 10 or 15; Anson, a few; Ashe, 30; Bertie; Bladen, 3; Brunswick, 2; Buncombe, 1; Burke, 6; Caldwell, 40; Camden, 2; Catawba, 4; Cherokee, 20; Chowan, 2; Clay, 2; Cleveland, several; Columbus, 4; Craven, 5; Cumberland; Duplin, 4; Durham, 7; Edgecombe, a great many; Forsyth, 20; Franklin, a few; Gaston, a few; Gates, 3; Graham, 5; Granville, 2; Greene; Guilford, 6; Harnett, 18; Haywood, 6; Hertford, in all parts; Iredell, 3; Johnston, a few; Lincoln, 12; McDowell, 5; Macon, 7; Madison; Martin, 3; Mecklenburg; Mitchell, many; Montgomery, 5; Nash, 9; New Hanover, 5; Northampton, a few; Onslow; Orange, 1; Pasquotank, several; Perquimans, 4; Person, a few; Randolph, 4; Robeson, 60 or 70; Rockingham, several; Rowan, 15; Sampson, a few; Scotland, a few; Surry, 6; Union, a few; Vance, a few; Wake, 12; Warren, 6; Watanga, 2; Wilkes, 4; Wilson, many; Yadkin, 5; Yancey, several—67 counties.

MALARIAL FEVER.—Alamance; Brunswick; Camden, general; Carteret; Columbus, general; Craven; Currituck, Dare, Davidson, general; Duplin; Durham; Edgecombe, general; Gaston; Gates, 20; Harnett; Hertford, Johnston, Lincoln, general; Martin; Montgomery, many; New Hanover, Northampton, Onslow, general; Perquimans; Pitt; Sampson, general; Union, general; Wake; Warren; Washington, general; Wilson—31 counties.

MALARIAL FEVER, PERNICIOUS.—Alamance; Columbus, 2; Greene, 6; Harnett, 37; Northampton, 1; Onslow, 2; Sampson, a few—7 counties.

MALARIAL FEVER, HEMORRHAGIC.—Brunswick; Craven, 1; Durham, 1; Harnett, 2; New Hanover, 1; Onslow; Perquimans, 2.

BOWEL DISEASES.—Currituck.

CEREBRO-SPINAL MENINGITIS.—Camden, McDowell, Macon.

INFLUENZA.—Graham.

SALLPOX.—Beaufort, a few; Chowan, 1; Columbus, 1; Craven, 1; Cumberland, 7; Henderson, 2; Pasquotank, 3; Perquimans, 22; Richmond, 7; Scotland, a few; Washington, 6—11 counties.

SOME ERUPTIVE TROUBLE IN NEGROES.—Hyde.

CHOLERA, IN HOGS.—Cherokee, Chowan.

No diseases reported from Polk.

No report received from Alleghany, Caswell, Chatham, Halifax, Jackson, Jones, Lenoir, Moore, Pamlico, Pender, Rutherford, Stanly, Swain, and Wayne.

SUMMARY OF MORTUARY REPORTS FOR SEPTEMBER, 1905.

EIGHTEEN TOWNS.

	White.	Col'd.	Total.
Aggregate population	93,300	58,550	151,850
Aggregate deaths	96	118	214
Representing temporary annual death-rate per 1,000	12.3	24.2	16.9
<i>Causes of Death.</i>			
Typhoid fever	8	5	13
Malarial fever	4	6	10
Diphtheria	1	0	1
Whooping-cough	1	0	1
Consumption	3	20	23
Brain diseases	6	6	12
Heart diseases	9	6	15
Neurotic diseases	1	7	8
Diarrhoeal diseases	18	21	39
All other diseases	41	44	85
Accident	2	2	4
Suicide	1	0	1
Violence	1	1	2
	96	118	214
Deaths under five years	33	34	67
Still-born	7	13	20

Mortuary Report for September, 1905.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH-RATE PER 1,000.	RACES.			Causes of Death.												TOTAL DEATHS.	TOTAL DEATHS, UNDER FIVE YEARS.	TOTAL STILL-BORN.				
			By Races.	Total.	By Races.	Total.	Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Violence.			
Charlotte{ Dr. F. O. Hawley.	W. 12,000 C. 8,000	20,000	9.0 12.6	12.6	20,000	12.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	5	3
Durham{ Dr. T. A. Mann.	W. 12,000 C. 6,000	18,000	11.0 12.7	12.7	18,000	11.0	2	1	1	1	1	1	1	1	1	1	1	1	1	1	12	3	3	
Edenton{ Dr. T. J. Hoskins.	W. 1,200 C. 2,100	3,300	10.0 11.4	10.9	3,300	10.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	
Elizabeth City{ Dr. H. D. Walker.	W. 5,000 C. 3,000	8,000	7.2 20.0	12.0	8,000	7.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	2		
Fayetteville{ Dr. A. S. Rose.	W. 3,500 C. 2,500	6,000	6.8 33.6	18.0	6,000	6.8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	2		
Greensboro{ Jno. S. Michaux, Esq.	W. 10,000 C. 5,000	15,000	10.8 36.0	19.2	15,000	10.8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	9	4	2	
Marion{ Dr. B. L. Ashworth.	W. 1,300 C. 100	1,400	18.5 0.0	17.1	1,400	18.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	2	...	
Monroe{ Dr. Jno. M. Blair.	W. 2,000 C. 800	2,800	0.0 15.0	4.3	2,800	0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	
Oxford{ Dr. S. D. Booth.	W. 1,400 C. 1,400	2,800	0.0 8.6	4.3	2,800	0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Raleigh{ T. P. Sale, Clerk B. H.	W. 9,000 C. 6,000	15,000	16.0 12.0	14.4	15,000	16.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	3	1	
Salem{ S. E. Butner, Supt. H.	W. 3,300 C. 350	3,650	7.3 0.0	6.6	3,650	7.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	2	...	
Salisbury{ Dr. H. T. Trantham.	W. 7,300 C. 3,600	11,000	14.6 13.3	14.2	11,000	14.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	13	2	
Southport{ Dr. J. A. Dosher.	W. 900 C. 500	1,400	0.0 72.0	25.7	1,400	0.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	3	...	
Tarboro{ Dr. S. N. Harrell.	W. 2,000 C. 500	2,500	12.0 72.0	24.0	2,500	12.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	5	1	
Wadesboro{ Dr. J. H. Bennett.	W. 1,200 C. 800	2,000	10.0 60.0	30.0	2,000	10.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	
Washington{ Dr. John G. Blount.	W. 3,100 C. 2,900	6,000	23.2 20.7	22.0	6,000	23.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	11	1	
Wilmington{ Dr. Chas. T. Harper.	W. 11,000 C. 10,000	21,000	24.0 40.8	32.0	21,000	24.0	2	2	1	1	1	1	1	1	1	1	1	1	1	1	22	56	9	
Winston{ Dr. J. L. Hanes.	W. 7,000 C. 5,000	12,000	8.6 19.2	13.0	12,000	8.6	4	4	1	1	2	2	2	2	2	2	2	2	2	1	5	13	2	

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. George W. Long.	Jones.....	Dr. N. G. Shaw.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. John W. Saine.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. L. Ashworth.
Ashe.....	Dr. Manley Blevins.	Macon	Dr. W. A. Rogers.
Beaufort	Dr. John G. Blount.	Madison	Dr. W. J. Weaver.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. Arthur Dosher.	Mitchell.....	Dr. Virgil R. Butt.
Buncombe	Dr. D. E. Sevier.	Montgomery	Dr. J. B. Shamburger.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. C. L. Wilson.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. C. G. Ferebee.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clarke.	Onslow.....	Dr. Cyrus Thompson.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. J. H. Taylor.	Pasquotank	Dr. J. B. Griggs.
Cherokee.....	Dr. J. A. Abernathy.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. J. M. Sullivan.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. Joseph E. Nobles.
Columbus.....	Dr. H. B. Maxwell.	Polk	Dr. C. J. Kenworthy.
Craven.....	Dr. Joseph F. Rhem.	Randolph	Dr. A. M. Bulla.
Cumberland.....	Dr. A. S. Rose.	Richmond.....	Dr. L. D. McPhail.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. J. S. Brown.
Davie	Dr. M. D. Kimbrough.	Rutherford.....	Dr. E. B. Harris.
Duplin	Dr. A. J. Jones.	Sampson	Dr. J. O. Matthews.
Durham	Dr. T. A. Main.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. S. N. Harrell.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. S. F. Pfohl.	Stokes	
Franklin	Dr. R. F. Yarborough.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. H. F. Glenn.	Swain.....	Dr. R. L. Davis.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. M. J. Maxwell.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. Henry D. Stewart.
Greene.....	Dr. W. B. Murphy, Jr.	Vance.....	Dr. John Hill Tucker.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. W. McGee, Jr.
Halifax	Dr. J. E. Green.	Warren.....	Dr. P. J. Macon.
Harnett.....	Dr. L. J. Arnold.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. R. McCracken.	Watauga.....	Dr. H. McD. Little.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. William Spicer.
Heriford	Dr. Robert W. Smith.	Wilkes.....	Dr. W. P. Horton.
Hyde.....	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. M. R. Adams.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. William Self.	Yancey	Dr. J. B. Gibbs.
Johnston	Dr. Thel Hooks.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed? If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.



BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

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GEO. G. THOMAS, M. D., Pres., Wilmington. T. E. ANDERSON, M. D., Statesville.
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RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XX.

NOVEMBER, 1905.

No. 8.

THE PURE FOOD PROBLEM.

By GERALD McCARTHY, BIOLOGIST.

The importance of pure food from both the physiological and therapeutical standpoints will require no defense when addressing medical men. Yet upon this subject there seems to exist a strange apathy both among the profession and laity. Possibly our people are so used to unsanitary cooking that they judge a little poison added to the universal baking powder and grease will do no particular harm.

The fundamentals of nutrition have been ably restated by Dr. W. O. Atwater in a Bulletin recently published by the United States Department of Agriculture as follows:

THE BODY IS A MACHINE.

"Blood and muscle, bone and tendon, brain and nerve—all the organs and tissues of the body—are built from the nutritive ingredients of food. With every motion of the body, and with the exercise of feeling and thought as well, material is consumed and must be resupplied by food. In a sense, the body is a superior machine. Like other machines, it requires material to build up its several parts, to repair them as they are worn out, and to serve as fuel. The steam engine gets its power from fuel; the body does the same. In the one case coal or wood, in the other food, is the fuel. In both cases the energy which is latent in the fuel—the potential energy, as it is called in scientific language—is transformed into heat and power.

The chief uses of food, then, are two: (1) To form the material of the body and repair its wastes, and (2) to yield heat to keep the body warm and furnish muscular and other power for the work it has to

do. In forming the tissues and the fluids of the body the food serves for building and repair. In yielding heat and power it serves as fuel.

If more food is eaten than is needed, more or less of the surplus may be and sometimes is stored in the body, chiefly in the form of fat. The fat in the body forms a sort of reserve supply of fuel and is burned in the place of food. When the work is hard or the food supply is low the body draws upon this store of fat and grows lean.

We have been considering food as a source of heat and muscular power. There is no doubt that intellectual activity, also, is somehow dependent upon the consumption of material which the brain has obtained from the food; but just what substances are consumed to produce brain and nerve force, and how much of each is required for a given quantity of intellectual labor, are questions which the physiological chemist has not yet answered.

For people in good health and with good digestion there are two important rules to be observed in the regulation of the diet. The first is to choose the things which "agree" with them, and to avoid those which they can not digest and assimilate without harm. The second is to use such kinds and amounts of food as will supply all the nutrients the body needs and at the same time avoid burdening it with superfluous material to be disposed of at the cost of health and strength.

For guidance in this selection, nature provides us with instinct, taste, and experience. Physiological chemistry adds to these the knowledge—still new and far from adequate—of the composition of food and the laws of nutrition."

During the last twenty years or so the adulteration of food stuffs, and even the substitution of poisonous for wholesome foods, has gone on with little or no check from the law until it has now reached a most sinister development. For cane sugar—the universal sweetener—purveyors have learned to substitute a product of coal-tar: "saccharin." "Saccharin" is indigestible and a poison, but being 500 times sweeter than cane sugar it is substituted with a boasted profit to one firm alone of \$9,500 per year. In other words, \$500 worth of "saccharin" takes the place of \$10,000 worth of sugar. The amount of ill-health that \$500 worth of "saccharin" may cause, and the losses of time and money to the unsuspecting consumers, may amount to much more than the manufacturer's saving; but that is another story.

By the use of coal-tar dyes tomato canners have been able to color green, unripe fruit a brilliant red. By the use of other chemicals they are able to use rotten fruit for manufacture of catsup. People who never buy a bushel of fruit are able to turn out tons of "Pure fruit jelly." This stuff is made of starch, glucose and acids colored by coal-tar dyes and flavored with synthetic ethers. Even the dried fruit men are up to date in purveying "embalmed" goods. Recent publications of some of the Pure Food Commissioners have shown that all the "Ruby" and "Silver" prunes on the market, and a great deal of the dried apricots and peaches, as well as seedless raisins, contain sul-

phite of soda in amounts dangerous to health. The following table of analyses is taken from a recent report by the Food Commissioner of North Dakota :

"SULPHITES FOUND IN DRIED FRUITS."	Per cent. originally present (estimated) sodium sulphite.
Ruby Prunes	0.17
Evaporated Apricots	0.66
Evaporated Peaches	0.46
Evaporated Peaches	0.45
Ruby Prunes	0.76
Dried Apricots	0.60
Silver Prunes	0.18
Silver Prunes	0.34
Silver Prunes	0.44
Silver Prunes	1.00
Ruby Prunes	0.56
Ruby Prunes	0.70
Silver Prunes	0.49
Ruby Prunes	2.22
Average	0.50

"The average amount of combined sulphurous acid calculated as sodium sulphite in the above analysis, approximates very closely that found in the embalmed meats, and granting that one-fourth was recovered, the amount originally present is sufficient to condemn these fruits at once as an article of diet."

Nor is the poisoning of food stuffs restricted to fruits and vegetables. The butchers are "onto" the scheme, so that ice is no longer needed to preserve "fresh" meat even in the hottest weather. In the meat market of Raleigh, N. C., the food chemist of the Department of Agriculture found ten out of twelve samples of "fresh meat" he purchased copiously seasoned with boric acid. The following extract from a published Report issued by another State shows what may be looked for in most North Carolina towns.

"More than 90 per cent. of the local meat markets in the State were using chemical preservatives and in nearly every butcher shop could be found a bottle of Freezem, Preservaline, Iceine, or Bull Meat Flour. The amount of borax or boracic acid employed on these meats varied to a considerable extent, and expressed in terms of boracic acid, in sausages and hamburger steak it would probably range from 20 grains to 45 grains per pound, while the medical dose is from 5 to 9 grains per day. The use of these chemicals is not confined to the local butchers; scarcely a ham could be found that did not contain borax. In the dried beef, in the smoked meats, in the canned bacon, in the canned chipped beef, boracic acid or borates is a common ingredient. Certainly it can not be said that the use of this pre-

servative is necessary in goods sealed in glass and tin, whatever may be said with regard to their use in other classes of meats. Probably sodium sulphite is more generally used than any other preservative in sausages and hamburger steak by the local butcher. At times the meat which he employs in the preparation of these products is tainted and the use of sulphites helps him to dispose of such meats as fresh products.

"Canned salmon was frequently found to contain borates in varying quantity, and while many of the canners protested that they were not using borates, nevertheless, it was shown that the special salt sold them for use, contained sufficient borax to act as a preservative agent. We quote from a letter of a prominent packer on the coast: "The analysis made by one of the packers in this city, showed that your statements in regard to this borax was true, although the packer, himself, has never purchased an ounce of borax. * * * It was found that the salt contained the borax." This same class of salt has been sold to dairy men at a fancy price, with the statement that because it was so highly purified from foreign matter, the butter in which this salt was used would keep indefinitely."

As to the physiological effect of boric acid and of the borates, we quote the following from the New Hampshire Sanitary Bulletin for July, 1904:

INFLUENCE OF BORIC ACID AND BORATES ON DIGESTION AND HEALTH.

"The physiological effects following the ingestion of borax in small quantities, such as are employed in preserving food, have been discussed by various authors, and their conclusions are so varied as to be of little value. One of the latest articles, which has been accepted as reliable, discusses the subject as follows: 'As the antiseptic action of boric acid is small, comparatively large quantities are necessary to preserve articles of food, and it is quite possible for a person to take as much as three grammes, or 46 grains, daily in his ordinary food.' The author insists that his assimilation experiments which were carried on, on dogs, cats, rabbits, and on four assistants in his laboratory, showed positively that the use of borax and boric acid interferes with the absorption of food and causes the excretion of an abnormally large amount of nitrogen. He believes it is demonstrated that large doses of boric acid reduces the body weight and that the excretion of these substances from the body is so slow that their accumulation in the body is probable. Borax and boric acid cause diuresis, which may produce damage to the kidneys; they cause skin eruptions which indicate nutritive disturbances; they may produce diarrhea; they interfere with the normal absorption of food; and they may produce vomiting."

The conclusion is that the use of boron compounds in food should be forbidden.

Dr. Wiley, of the Bureau of Chemistry, Department of Agriculture, sums up the result of his investigations with the influence of boric acid and borax in foods on digestion and health, as follows:

"The general results of the investigation secured by combining into single expressions all the data relating to each particular problem studied show in a convincing way that even in doses not exceeding half a gram ($7\frac{1}{2}$ grains) a day boric acid and borax equivalent thereto are prejudicial when consumed for a long time. It is undoubtedly true that no patent effects may be produced in persons of good health by the occasional use of preservatives of this kind in small quantities, but the young, the debilitated, and the sick must not be forgotten, and the safe rule to follow is to exclude these preservatives from foods of general consumption."

In the light of all the data at hand no one should longer consider the use of these preservatives as harmless.

THE USE OF SODIUM SULPHITES IN MEATS.

Studies upon sausages and hamburger steak indicates that from 0.20 per cent. to 0.50 per cent. or more of sulphites are employed in these meats. As to the harmfulness of these products a recent article by Dr. Harrington of Harvard Medical College, entitled "Sodium Sulphite, A Dangerous Food Preservative," gives the results of his investigations, and from this we quote the following:

"It (sodium sulphite) is classed as a food preservative, but its antiseptic properties are comparatively feeble. It is used more especially on account of its effect on the appearance of the food to which it is added, its preservative influence being decidedly a minor consideration. It confers upon minced meat (chopped meat) an abnormally brilliant red color, which conveys to the purchaser the idea of freshness. * * * Persisting as it does, meat which is in reality well advanced in decomposition is enabled to be sold as perfectly fresh."

Since the human body is a machine in which food serves as fuel, the food we eat must as a consequence modify and color all our thoughts, desires and actions. As machines differ, so also do human bodies differ among themselves in grain and mettle. Even among foods innocent in themselves, what agrees with one person may disagree with another. Nature has endowed human beings with an instinct which tells each person what he may eat and what he must avoid. No sane person will knowingly eat as food any of the poisonous dyes or preservatives which manufacturers secretly put into or upon the foods they sell and frequently label "Pure." By these sophistications it becomes impossible to tell what we are eating or to select foods which agree with us and avoid those which do not.

Men posing in their communities as "honorable business men" poison the very fountain of thought and action. They do this not out of ignorance or inadvertently, but out of an excess of knowledge and

at the instigation of avarice which knows no bounds and acknowledges no law or responsibility.

Having respect for neither the moral law nor ethical considerations there remains no recourse but to make these miscreants feel the firm grip of the criminal law. This means the local dealer as well as the distant manufacturer. If a few of the butchers who keep on hand a supply of "Freezem" or similar poisonous compounds, were taken from their stalls and placed in the chain-gang for a while we would soon see an end to the use of such substances.

Publicity is everywhere one of the most efficient means for check-mating rascals. The recent Legislature amended the North Carolina Pure Food Act so that it is made the duty of the Commissioner of Agriculture—who is *ex officio* Food Commissioner—to publish for two weeks in some local newspaper the names of dealers found selling adulterated or fraudulent foods. It is quite probable that many "honorable men" in different North Carolina towns will before long find themselves held up to their customers as swindlers and poisoners. It will be interesting to watch the effect of this amendment which was copied from a law which has long been in force and found very effective in France.

In the meantime it is not expecting too much to look to family physicians, the heads of public institutions and all others who have power to influence the quality of foods purchased, to advise clients to give special attention to the real character of the canned and dried fruits they purchase and to the canned, smoked and "fresh" meats and fish they accept from their butchers or grocers.

REVIEW OF DISEASES FOR OCTOBER, 1905.

EIGHTY-FOUR COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of October the following diseases have been reported from the counties named:

MEASLES.—Anson, several cases; Caldwell, 20; Guilford, 1; Martin, several; Person, a few; Pitt; Randolph; Rockingham; Transylvania, epidemic; Union, epidemic; Warren, a few—11 counties.

WHOOPING-COUGH.—Alamance; Caldwell, 82; Carteret, many; Caswell, several; Chatham, 50; Craven, a few; Davie, a few; Duplin,

20; Forsyth, a few; Graham, 5; Haywood, several; Iredell, 6; Johnston, a few; McDowell, 4; Mecklenburg; Mitchell, many; New Hanover, 2; Pitt; Rowan, 10; Rutherford, 10; Union, epidemic; Vance, a few; Wake, 12; Warren, a few; Wilkes, 20—25 counties.

SCARLATINA.—Ashe, 6; Buncombe, 4; Cabarrus, 1; Durham, 3; Forsyth, 2; Graham, 4; Macon, 2; Mecklenburg; New Hanover, 1; Orange, 1; Rockingham, a few; Scotland, 2; Vance, 1; Wake, 1; Yancey, 1—15 counties.

DIPHTHERIA.—Alamance, 2; Buncombe, 1; Cabarrus, 3; Caldwell, 2; Carteret, several; Caswell, 39; Chatham, 12; Cleveland, a few; Columbus, 2; Cumberland, 15; Duplin, 32; Durham, 2; Edgecombe, several; Forsyth, 6; Gaston, 3; Granville, 1; Greene, epidemic; Guilford, 16; Halifax, many; Haywood, 10; Henderson, 1; Iredell, 1; Jackson, 2; Johnston, 3; Macon, 12; Martin, 2; Mecklenburg; Mitchell, many; Montgomery, 2; New Hanover, 14; Northampton, 4; Onslow; Pitt; Randolph, 3; Rockingham; Rowan, 9; Rutherford, 5; Sampson, 2; Surry, 2; Swain, 6; Transylvania, 1; Union, 6; Vance, 1; Wake, 6; Warren, 14; Watauga, 3; Wilkes, 5; Wilson, 4; Yancey, a great many—49 counties.

TYPHOID FEVER.—Alamance, a few; Anson, a few; Ashe, 50; Burke, 2; Cabarrus, 1; Caldwell, 28; Carteret, 1; Caswell, 4; Catawba, 2; Chatham, 2; Cleveland, a few; Columbus, 3; Craven, 3; Cumberland, 5; Davidson; Davie, a few; Duplin, 6; Durham, 18; Edgecombe, many; Forsyth, a few; Franklin, a few; Gaston, a few; Gates, 3; Graham, 1; Greene, 3; Guilford, 5; Harnett, 2; Haywood, 8; Henderson, 4; Hertford, a few; Iredell, 2; Jackson, 4; Lincoln, 6; McDowell, 3; Macon, 4; Martin, several; Mecklenburg; Mitchell, many; Montgomery, 4; New Hanover, 5; Northampton, 2; Onslow; Orange, 1; Pasquotank, several; Person, a few; Pitt; Randolph; Robeson, a few; Rockingham; Rowan, 5; Rutherford, 4; Sampson, a few; Surry, 6; Union, 12 or 15; Wake, 7; Warren, 4; Watauga, 2; Wilkes, 10; Yadkin, 5; Yancey—60 counties.

MALARIAL FEVER.—Bertie; Brunswick; Cabarrus; Camden, in all parts; Caswell, in all parts; Columbus; Craven; Currituck; Dare, in all parts; Edgecombe, in all parts; Gaston; Gates, 10; Hertford, in all parts, mild; Johnston, in all parts; Lincoln; Martin; New Hanover; Onslow, in all parts; Pitt; Randolph; Sampson, in all parts; Union; Warren, in all parts—22 counties.

MALARIAL FEVER, PERNICIOUS.—Cabarrus, 2; Caswell, 1; Columbus, 2; Craven, 6; Gaston, 1; Martin, 1; Sampson, a few; Union, 2.

MALARIAL FEVER, HEMORRHAGIC.—Camden, 1; Martin, 1; New Hanover, 1; Onslow, several; Pitt—5 counties.

BOWEL DISEASES.—Currituck, a few; Gates, a few.

ERYSIPELAS.—Gates, 4.

INFLUENZA.—Davie.

PNEUMONIA.—Alamance; Ashe, 6; Camden, 1; Martin, several; Mecklenburg—5 counties.

TONSILLITIS.—Montgomery, in all parts.

SMALLPOX.—Buncombe, 3; Clay, 2; Columbus, 1; Cumberland, 7; Henderson, 1; Hyde, 25; Pasquotank, 3; Rowan, 1; Wake, 1; Washington, 17; Wayne, 11—11 counties.

CHOLERA, IN HOGS.—Cherokee, Chowan, Duplin, Jackson and Macon.

No diseases reported from Cherokee, Chowan, Nash, Polk and Richmond.

No reports received from Alexander, Beaufort, Bladen, Jones, Lenoir, Madison, Moore, Pamlico, Pender, Perquimans and Stanly.

SUMMARY OF MORTUARY REPORTS FOR OCTOBER, 1905.

TWENTY-THREE TOWNS.

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population	114,400	71,850	186,250
Aggregate deaths	117	147	264
Representing temporary annual death-rate per 1,000	12.3	24.5	17.0
<i>Causes of Death.</i>			
Typhoid fever	11	8	19
Scarlet fever	0	2	2
Malarial fever	3	4	7
Diphtheria	4	2	6
Whooping-cough	2	2	4
Measles	0	1	1
Pneumonia	5	9	14
Consumption	8	27	35
Brain diseases	6	8	14
Heart diseases	10	13	23
Neurotic diseases	1	2	3
Diarrheal diseases	20	10	30
All other diseases.....	43	52	95
Accident	2	7	9
Violence	2	0	2
	117	147	264
Deaths under five years.....	40	52	92
Still-born	6	16	22

MORTUARY REPORT FOR OCTOBER, 1905.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH-RATE PER 1,000.			Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	By Races.	TOTAL DEATHS.	Deaths under five years.	Still-born.
		RACES.	By Races.	Total.																				
Charlotte{ Dr. F. O. Hawley.	W. 12,000	20,000	5.0	7.2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Durham.....{ Dr. T. A. Mann.	W. 12,000	18,000	16.0	26.7	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Edenton.....{ Dr. T. J. Hoskins.	W. 1,500	4,000	24.0	12.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Elizabeth City.....{ Dr. H. D. Walker.	C. 2,500	4,8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fayetteville.....{ Dr. A. S. Rose.	W. 3,500	6,000	13.7	10.0	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Goldsboro.....{ Robt. A. Creech, H. O.	W. 5,000	8,000	4.8	7.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Greensboro.....{ J. S. Michaux, C. Cl.	W. 10,000	15,000	10.8	21.6	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Henderson.....{ Dr. G. A. Coggeshall.	W. 2,000	3,800	6.0	3.2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lexington.....{ J. H. Moyer, Mayor.	W. 3,000	3,600	4.0	10.0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Marion.....{ Dr. B. L. Ashworth.	W. 1,500	1,600	8.0	7.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Monroe.....{ Dr. Jno. M. Blair.	W. 2,400	3,400	0.0	0.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oxford.....{ Dr. S. D. Booth.	W. 1,400	2,800	8.6	8.6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Raleigh.....{ T. P. Sale, Clerk B. H.	W. 9,000	16,000	24.0	23.2	..	..	1	1	..	1	..	1	..	1	..	1	..	1	..	1	..	1	..	..
Salem.....{ S. E. Butner, Mayor.	W. 3,400	3,800	10.6	9.5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Salisbury.....{ Dr. H. T. Trantham.	W. 7,400	11,000	3.2	6.5	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tarboro.....{ Dr. S. N. Harrell.	W. 2,500	3,500	9.6	10.3	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wadesboro.....{ Dr. S. H. Bennett.	W. 1,200	2,000	10.0	24.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Washington.....{ Dr. John G. Blount.	W. 3,500	6,500	20.6	20.3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Waynesville.....{ Dr. Thos. Stringfield.	W. 1,600	2,000	7.5	6.0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Weldon.....{ J. T. Gooch, Mayor.	W. 700	1,450	17.1	48.0	33.1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wilmington.....{ Dr. Chas. T. Harper.	W. 11,000	21,000	31.6	31.4	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wilson.....{ Dr. W. S. Anderson.	W. 3,800	6,800	15.8	17.6	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Winston.....{ Dr. J. L. Hanes.	W. 10,000	16,000	3.6	14.2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	C. 6,000	32.0	4	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

*In addition one white non-resident died of tuberculosis.

County Superintendents of Health.

Alamance	Dr. George W. Long.	Jones.....	Dr. N. G. Shaw.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. John W. Saine.
Anson	Dr. J. H. Bennett.	McDowell.....	Dr. B. L. Ashworth.
Ashe.....	Dr. Manley Blevins.	Macon	Dr. W. A. Rogers.
Beaufort	Dr. John G. Blount.	Madison	Dr. W. J. Weaver.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. H. Harrell.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. Arthur Dosher.	Mitchell.....	Dr. Virgil R. Butt.
Buncombe	Dr. D. E. Sevier.	Montgomery	Dr. J. B. Shamburger.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. C. L. Wilson.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. C. G. Ferebee.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clarke.	Onslow.....	Dr. Cyrus Thompson.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. J. H. Taylor.	Pasquotank	Dr. J. B. Griggs.
Cherokee.....	Dr. J. A. Abernathy.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans	Dr. C. C. Winslow.
Clay	Dr. J. M. Sullivan.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. Joseph E. Nobles.
Columbus.....	Dr. H. B. Maxwell.	Polk	Dr. C. J. Kenworthy.
Craven.....	Dr. Joseph F. Rhem.	Randolph	Dr. A. M. Bulla.
Cumberland.....	Dr. A. S. Rose.	Richmond.....	Dr. L. D. McPhail.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. J. S. Brown.
Davie	Dr. M. D. Kimbrough.	Rutherford.....	Dr. E. B. Harris.
Duplin	Dr. A. J. Jones.	Sampson	Dr. J. O. Matthews.
Durham	Dr. T. A. Mann.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. S. N. Harrell.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. S. F. Pfohl.	Stokes	
Franklin	Dr. R. F. Yarborough.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. H. F. Glenn.	Swain.....	Dr. R. L. Davis.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. M. J. Maxwell.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. Henry D. Stewart.
Greene.....	Dr. W. B. Murphy, Jr.	Vance.....	Dr. John Hill Tucker.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. W. McGee, Jr.
Halifax	Dr. I. E. Green.	Warren.....	Dr. P. J. Macon.
Harnett.....	Dr. L. J. Arnold.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. R. McCracken.	Watauga.....	Dr. H. McD. Little.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. William Spicer.
Hertford	Dr. Robert W. Smith.	Wilkes.....	Dr. W. P. Horton.
Hyde.....	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. M. R. Adams.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. William Self.	Yancey	Dr. J. B. Gibbs.
Johnston	Dr. Thel Hooks.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed? If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.

BULLETIN
OF THE
NORTH CAROLINA BOARD OF HEALTH

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington. T. E. ANDERSON, M. D.---Statesville.
S. WESTRAY BATTLE, M. D.---Asheville. J. HOWELL WAY, M. D.---Waynesville.
HENRY W. LEWIS, M. D.----Jackson. W. O. SPENCER, M. D.----Winston-Salem.
W. P. IVEY, M. D. -----Lenoir. J. L. LUDLOW, C. E. -----Winston-Salem.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XX.

DECEMBER, 1905.

No. 9.

COMPULSORY VACCINATION—OPINION OF ATTORNEY-GENERAL.

As was expected and predicted, with the advent of cold weather smallpox is becoming much more prevalent in the State. It has been the annually recurring story since the introduction of the disease in 1898. It will continue to be repeated indefinitely until all the people have had it or been vaccinated. Our experience confirms that of all other communities: vaccination is the only sure method of prevention. The people will not seek it voluntarily. They must, therefore, be vaccinated under compulsion or remain susceptible and a perennial source of loathsome disease, death, loss of trade, and expense to their communities. The responsibility for the prevention of infectious disease is laid by the law upon the county sanitary committees, except where incorporated cities and towns have assumed it. The power to meet this responsibility is ample and definite. It is strongly set forth in the opinion of the Attorney-General given below, in a letter to the Superintendent of Health of Hyde County. As is so often the case, in spite of warning, the authorities listened at first to the chicken-pox siren. Now that the whole county practically is infected, compulsory vaccination has been ordered. A doubt, strange to say, on the part of the county attorney as to the legal right to enforce it was the occasion of the opinion, which is as follows:

[COPY.]

STATE OF NORTH CAROLINA,
OFFICE OF ATTORNEY-GENERAL,

RALEIGH, December 12, 1905.

DR. E. H. JONES.

Swan Quarter, N. C.

DEAR SIR:—Your letter of recent date, with inclosure, addressed to Dr. R. H. Lewis of this city, has been referred to me for reply. The inquiry which it presents relates to the power of the County Sanitary Committee, or Board of Health of the County of Hyde, to order compulsory vaccination in the said county. In the circular accompanying your communication it appears that the Sanitary Board, for the purpose of acting upon what is declared to be "the emergency of smallpox epidemic prevalent in said county," etc. The only question submitted is, Did the Sanitary Committee have the power to order compulsory vaccination?

Chapter 214, Public Laws North Carolina, Session 1893, as amended, relates to the Board of Health. The Supreme Court of North Carolina, referring to the said law, has declared that it "is a well considered and carefully drawn statute for the preservation of the public health." Section 23 thereof, entitled "Vaccination," contains the following language: "The authorities of any city or town or the board of county commissioners of any county, may make such regulations and provisions for the vaccination of its inhabitants under the direction of the local or county board of health or a committee chosen for the purpose, and impose such penalties, as they may deem necessary to protect the public health."

Our Supreme Court, in State v. Hay, 126 N. C., 999, passed upon an ordinance of the town of Burlington, ordering compulsory vaccination of its citizens, and after declaring that "the highest medical authorities, confirmed by long experience with mankind, attest the efficacy of vaccination as a preventative or alleviative of a most dreadful disease, smallpox," expressly decided that the authorities of a county or town may make regulations and provisions for the vaccination of its inhabitants and enforce them by penalties.

The Supreme Court of the United States, in February, 1905, in the case of Jacobson v. Massachusetts, 197 U. S., 11, affirmed the Supreme Court of the State of Massachusetts, which had held that the Legislature of the State, in the exercise of its police power, had authority to enact a compulsory vaccination law. This case involved the validity of an ordinance of the city of Cambridge, which was in the following words: "Whereas, smallpox has been prevalent to some extent in the city of Cambridge, and still continues to increase; and whereas, it is necessary, for the speedy extermination of the disease, that all persons not protected by vaccination should be vaccinated; and whereas, in the opinion of the board, the public health and safety require the vaccination or re-vaccination of all the inhabitants of Cambridge; be

it ordered, that all the inhabitants of the city who have not been successfully vaccinated since March 1, 1897, be vaccinated or re-vaccinated."

So far as we are aware, all the courts that have considered the question have recognized the right of the Legislature to enact laws founded upon the theory that vaccination is important as a preventive of smallpox. The Legislature of our State has expressly conferred upon the sanitary committee the power to make regulations and provisions for the vaccination of the inhabitants in order that the spread of the disease may be prevented.

Of course, the law contemplates that the statute will be enforced in a reasonable manner, and not arbitrarily, which must be left to the good judgment of the parties charged with carrying the law into effect. Should there be any undue hardship attending its enforcement, and the discretion in any way abused, the courts would afford relief to the injured party.

The only question with which I deal in this opinion is the authority of the Legislature to confer upon the sanitary committee of a county the authority to order compulsory vaccination, and I hold that the Legislature possesses such authority.

Very respectfully,

(Signed) ROBERT D. GILMER,
Attorney-General.

VALUE OF VACCINATION.

Dr. Schamberg, who has long been connected with the infectious disease hospital and whose practical experience has been so ample that his opinion should be respected even by an anti-vaccinationist, recently, before a Philadelphia audience, said that, of more than three thousand smallpox patients treated at the Philadelphia Municipal Hospital during the last three years, not one had been recently successfully vaccinated. None of the medical attendants were attacked. Of one hundred workmen employed near the patients four refused to be vaccinated. These were stricken with smallpox, while those who submitted to the operation were unscathed. Of seven hundred medical students who have worked in the smallpox wards only one caught the infection, and he had never been successfully vaccinated. If any evidence is good for anything, this is proof that failure to be vaccinated is an opportunity for smallpox. No such combinations of circumstances as are here recorded could be without a reason, and the reason is clear enough. If a person persists in not being vaccinated, he multiplies his chances of having smallpox. Dr. Schamberg says: "There is no excuse at the present day for any one to perish of smallpox. The man who refuses to have his children vaccinated is guilty of criminal negligence; more so, indeed, than he who stores in his house dangerous explosives."—*Bulletin of Maine Board of Health.*

VON BEHRING'S STUDIES IN TUBERCULOSIS.

BY HENRY L. SHIVELY, M. D., NEW YORK.

"We know now that immunizing antibodies regularly appear in the blood wherever an infectious disease terminates in recovery; and we are in a fair way to formulate a biological law through which it may be affirmed, first, that in the ultimate analysis there exists but one single immunizing substance for each disease, and, second, that specific immunizing substances can be obtained in no other way than from the blood and organic juices of such individuals as have already passed through the pathological processes against which we seek to produce immunity."—*Von Behring's address at Bonn, March 16, 1904.*

Following Koch's discovery in 1882 there was a brief period of vigorous attack upon the tubercle bacillus with chemical disinfectants and internal drugs, which was as futile as it was widespread and enthusiastic. It was soon demonstrated that this plan of campaign was doomed to failure, and the general disappointment was expressed in the dictum of the medical congress held at Wiesbaden in 1883 that internal disinfection was impossible and would always remain so. Always, however, is a long time, and there was one voice raised in dissent from this despairing conclusion. Like a prophet in the wilderness, the eminent pharmacologist, Binz, uttered the following optimistic and prophetic words: "It is indeed possible that the human race will perish before the germs of diphtheria and tuberculosis are conquered, and that these parasites will stalk about unapproachable, like the destroying angel of Exodus, until the annihilation of all life also makes an end of them. But to me it appears more probable that diphtheria and tuberculosis, like malarial fever, will find their species." How well the part of his prediction relating to diphtheria has been fulfilled is now medical history, and it was the privilege of Binz a few years later (from 1887 to 1889) to materially aid, in his pharmaceutical institute, the development of the scientific genius of the great man who has robbed diphtheria of its terrors, and who has now roused the hopes of the world by his promise of a real remedy for tuberculosis.

The therapy of tuberculosis has been Dead Sea fruit which has turned to ashes in the hands of physician and patient. In a recent authoritative work on therapeutics some two hundred and forty different drugs and plans of treatment are extolled for tuberculosis, each receiving its meed of praise, from the tar water of Bishop Berkeley to the inflation of the rectum of the hapless patient with sulphuretted hydrogen gas (Bergeron). It is this wearisome *reductio ad absurdum* which has caused the ablest students of tuberculosis, and intelligent physicians alike, to abandon drugs and proclaim the saving grace of

fresh air, food, sunlight, rest, and baths. But these measures are only the necessary and elementary conditions of hygienic living, indispensable for well and sick alike; they are not remedies in any true sense, and urging them with such clamor and insistence as is now done is a virtual admission that the best medical science can do to-day for the tuberculous patient is to place him in as favorable a situation as possible for his single-handed and unequal struggle with his formidable disease, and then leave him to his fate. It is true that a certain number of patients recover, but the issue in every instance depends in the last analysis upon the resisting power of the individual patient, and is but little influenced by any direct remedial measures hitherto employed. It is this hopeless state which the trumpet-note of von Behring at the recent International Congress for the Study of Tuberculosis in Paris (1905) promises to dispel, and for faith in his promise there is the solid foundation of his magnificent achievement in diphtheria.

An examination of his methods and the results already accomplished for tuberculosis in the field of experimental therapeutics will afford rational grounds for the belief that the prevention and cure of tuberculosis may now not be far removed from fulfillment. Von Behring's first studies in tuberculosis date from the year 1880, when he was a young military surgeon stationed at Posen. He had at this time reported some observations on the favorable influence of iodoform on localized tuberculous lesions, and after the discovery of the bacillus he occupied himself with a study of the poisonous products of the vital processes of the bacilli, having become convinced that these toxic substances are as important perhaps as the bacilli themselves in their relation to the pathology of the disease. This was a distinct step in advance, as all therapeutic efforts were then being directed to illusory attempts to destroy the bacilli. Von Behring believed that without killing them, the germs might be rendered innocuous. His communications upon the effects of iodoform in tuberculosis led to a correspondence with Professor Binz, of the University of Bonn, and through him in 1887 he was induced to go to Bonn, where with the ample facilities afforded by the university he continued his researches on a larger scale. His studies in anthrax infection, influenced by the fruitful labors of Pasteur, revealed to him the wonderful immunizing and curative possibilities of the blood serum, and he dared hope that he might accomplish through it what he and others had found impossible to do with drugs and chemical disinfectants. In 1889 he was called to Koch's institute in Berlin and during the four years he spent in this rigorous school he was temporarily diverted from his great purpose, Koch in his institution reserving for himself the entire field of experimental work in tuberculosis. At this period von Behring was occupied chiefly with his remarkable researches in tetanus and diphtheria, which resulted in his discovery of the antitoxic sera for these diseases. It was only after his installa-

tion in 1893 as director of his own *Institut für Hygiene und experimentelle Therapie* at the University of Marburg in Hesse-Nassau (Prussia) that von Behring was free to take up again his therapeutic studies in tuberculosis, for which his previous training and mastery of diphtheria had probably better fitted him than any living man, not excepting even his great master, Robert Koch. The first problem to which he addressed himself was the production of a high degree of immunity in animals, and then would follow the endeavor to find in their blood, tissue fluids, and secretions specific substances for the protection and cure of others. The solution of the first stage of the problem has been definitely and finally attained by von Behring, as was announced by him last year, and in the same manner and according to the same biological law which was followed empirically years ago by Jenner in the discovery of vaccination for smallpox, and more recently with scientific precision by Pasteur in his immunization methods for anthrax and rabies. It is the application of this principle of the production in the blood of specific immunizing substances by the inoculation of attenuated and modified virus in minute and graduated doses which has given the entire scope of internal medicine a new impetus and more hopeful aspect.

For more than four years von Behring has been able to produce an artificial immunity to tuberculosis in cattle which has satisfied the most rigid clinical and experimental tests, and he has perfected a technique which is endorsed by scientific veterinarians and has been employed with success as a practical measure by numerous large stock raisers and proprietors of dairy herds in southern Germany, Hungary, and Bohemia. In the grand duchy of Hesse the method has received the official recognition and recommendation of the State. The inoculation material consists of dried tubercle bacilli in a sterile emulsion, which is injected into the circulation through the jugular vein. In the preparation of the emulsion the bacilli are carefully triturated to avoid the entrance of coarse particles into the blood current. Before using, the inoculation fluid is slightly warmed to approximate the temperature of the blood. The treatment is completed in two injections separated by an interval of twelve weeks. In the first injection one unit (0.004 gramme of dried bacilli) is used, in the second the dose is increased to five units (0.02 gramme). Cattle can be treated with both injections at a cost per head of but a mark and a half (thirty-six cents), and the material as prepared under the direction of Professor von Behring may now be obtained at this price. The most suitable age for the first preventive inoculation is from three weeks to three months, the operation is practically devoid of danger, and the calves so treated show no later ill effects from the injections. It has now been absolutely proved, in thousands of cases, that these calves do not become tuberculous when intimately associated in infected stables with other cattle with open tuberculous lesions, that they cannot be experimentally inoculated with tuberculosis, and that they do

not in later years respond to the tuberculin test. It would seem that these criteria should convince the most skeptical of the immense scientific and economic value of von Behring's methods in overcoming tuberculosis in cattle.

The obvious corollary of the success attained in immunizing calves is that the same principle applied, perhaps with modifications, to infants for the same purpose, offers a reasonable expectation of securing immunity from tuberculosis also for human beings, and von Behring does not hesitate to make this logical application of his method. He has practically declared that if the profession and public were ready to accept the inoculation treatment the tuberculosis question for future generations would be solved, for with the measures now at hand prevention has been attained. There are, however, practical difficulties in applying to human infants an experimental method, even if uniformly satisfactory in its results, which has been tested only upon animals, and the proposition to inoculate healthy babies with a preparation of tubercle bacilli has aroused prejudice and opposition in influential quarters which will require education and experience with the new method to overcome—just as was the case in the early history of vaccination for smallpox and in the beginning of the antitoxine treatment for diphtheria. This antagonism has been anticipated by von Behring, and until it can be allayed he has put forward for immediate adoption a measure for the protection of young children which he believes to be free from any possible objection and entirely practicable. This will be considered presently.

One of the important and original merits of von Behring's comprehensive programme for the effective control of tuberculosis is the emphasis he attaches to the danger of infection in early life. He says: "If we wish to protect the adult from consumption we must begin with the child,"* and he believes that the great majority of cases of ordinary tuberculosis of the lungs may be traced back to an infection in early infancy. To this infantile infection, which is often latent for many years, is due the increased susceptibility to subsequent infection, which develops afterward in the form of pulmonary consumption and the peculiar physical characteristics which have long been recognized clinically as belonging to the dyserasia, variously described by the older writers as the strumous or scrofulous diathesis, hypotrophy, the habitus phthisicus, etc. These physical peculiarities, the glandular swellings, malformation of the chest, tendency to eczemas, and conjunctival inflammations are the stigmata of tuberculosis in childhood, and von Behring believes that the principal source of infection is the milk upon which the child is nourished. It is upon this theory of milk infection that he has erected one of his plans of defense for the protection of young children. This consists in the

**Tuberkulosenstehung, Tuberkulosbekämpfung und Sauglingsernährung*, von Behring. Berlin, 1904. P. 62.

preservation of milk and the inhibition of germ activity in it by the addition of formaldehyde in the proportion of 1-40,000 to 1-25,000. The ordinary pasteurization of milk he considers objectionable, as by heating the natural antibacterial substances contained in the milk are destroyed and its nutritive value is impaired. The milk of cows rendered immune by the author's methods would, of course, be irreproachable as far as danger of conveying tuberculosis is concerned, and such milk, rich in specific antibodies, would produce immunity in children fed upon it, and would also exercise a favorable influence upon any infection which might already exist. It will be observed that von Behring almost wholly rejects the aerogenie, inhalation theory of the origin of pulmonary phthisis held by Koch, Flügge, Cornet, and others of the Berlin school, and considers that the starting point for consumption is usually a primary infection of the gastrointestinal tract during infancy which later reaches the lungs, ordinarily through the lymphatics and possibly also through the blood. This conception is based largely upon the histological observations of his colleague, Disse, professor of anatomy at Marburg, who has attempted to show that during the early days of infancy the mucous membrane of the stomach and intestine is imperfectly developed, resembling that of the fetus, in that the epithelial layer is deficient over considerable areas, and throughout is much thinner than in adults.* It is also claimed that the secretion of mucus is deficient and, as von Behring states, wanting in the ferment and protecting substances which are unfavorable to the life of the bacilli in the adult stomach and intestine. For these reasons infection more readily occurs in the gastrointestinal tract of young infants than later in life.

This insistence upon the milk supply as the principal source of infection and the almost exclusive prominence assigned to the alimentary tube as the port of entry appear to be the most vulnerable points in von Behring's doctrine. They have excited much adverse criticism from experimental investigators, pathologists, and clinicians. Koch's most recent view, as expressed by him at the London congress, is that the milk and other food products of cattle have little significance as factors in human tuberculosis. Baginsky is strongly opposed to von Behring's treatment of milk with formaldehyde,† and concurs in Koch's opinion that the danger of infection from milk is relatively slight. He also believes that the respiratory tract is the usual channel of infection. It has been pointed out that tuberculosis is prevalent in Japan, where the milk of cows is practically never used in feeding young children. In Germany, of 100 stonecutters, 89 die of consump-

*Untersuchungen über die Durchgangigkeit der jugendlichen Magen-Darmwand für Tuberkelbacillen. *Berliner Klinische Wochenschrift*, 1903, No. 1.

†*Verhandlungen der Berliner medicinischen Gesellschaft*. 1904. Vol. xxxv, first part, p. 56.

tion, of 100 metal polishers 71, of 100 slate pencil makers 66, and of 100 metal turners 61 perish from tuberculosis.* In dust-free occupations the mortality does not exceed the average for the general population. These figures are difficult to explain by any other than the inhalation theory. The conclusions of Disse have also been severely criticised by Westenhoeffer.^o Benda,[§] and others, and they have not been confirmed by other observers, either as to the anatomical conditions present or as to the physiological character of the secretions. C. E. Bloch, who has recently made an elaborate study of the minute structure of the gastrointestinal tract in infants, declares that "in general the difference in structure of the stomach and intestine in infants and adults, if size is excepted, is very slight indeed."^f

Dissenting opinions as to the route by which tuberculosis infection reaches the lungs, and as to the validity of von Behring's views on this and other theoretical problems, are of little consequence, however, compared with the stupendous fact of his unchallenged achievement in the prevention of bovine tuberculosis. His experience with immunization methods and his acknowledged preeminence in the field of experimental therapeutics entitle every utterance he makes to careful consideration, and the fact that he has deliberately announced a cure for tuberculosis must be regarded as an event of the most hopeful import. What the exact nature of this remedy may be it is of course impossible to know in advance of the important communication which he is expected soon to make. And yet it may be permitted, perhaps, to hazard a conjecture, based on inferences from the work in tuberculosis he has already done. It would appear not improbable that von Behring has succeeded in obtaining from the blood serum of his immunized calves specific antibodies in a form which may be used to adequately reinforce the resisting power of the tuberculous patient and so definitely arrest the progress of his disease.—*New York Medical Journal.*

**Loc. cit.*, Sommerfeld, p. 69.

^oUeber die Wege der tuberkulosen Infektion im kindlichen Korper. *Verhandlungen der Berliner medicinischen Gesellschaft.* Vol. xxxv, second part, p. 50.

[§]*Loc. cit.* Discussion of Westenhoeffer's paper, p. 59.

^fAnatomische Untersuchungen über den Magen-Darmkanal des Sauglings. *Jahrbuch für Kinderheilkunde*, 1903.

REVIEW OF DISEASES FOR NOVEMBER, 1905.**EIGHTY COUNTIES REPORTING.**

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of November the following diseases have been reported from the counties named:

MEASLES.—Anson; Bladen, a few cases; Caldwell, 83; Guilford, many; Harnett, 10; Pitt, 1; Randolph, 20; Scotland, a few; Transylvania, several—9 counties.

WHOOPING-COUGH.—Alleghany; Burke, a few; Caldwell, 76; Craven, several; Duplin, many; Durham, 6; Forsyth, a few; Franklin, a few; Graham, 5; Guilford; Iredell, 3; Johnston, a few; Lenoir, several; Lincoln, several; Martin, a few; Mitchell, many; Montgomery, 45; Randolph; Rockingham; Rowan, 5; Rutherford, a few; Union, epidemic; Vance, a few; Wake, 14; Wilkes, 5—25 counties.

SCARLATINA.—Alleghany; Ashe, 8; Buncombe, 8; Cabarrus, 2; Caldwell, 5; Cumberland, 1; Durham, 2; Forsyth, 4; Graham, 1; Guilford, 3; Haywood, 1; New Hanover, 2; Rockingham, a few; Stanly, several; Wilkes, 2—15 counties.

DIPHTHERIA.—Alamance, 25; Alleghany; Buncombe, 3; Cabarrus, 4; Carteret, a few; Caswell, 4; Catawba, 2; Columbus, 1; Craven, 2; Cumberland, 9; Currituck, 2; Davidson, 5; Duplin, 10; Edgecombe, several; Forsyth, 5; Green, 6; Guilford, 20 or more; Halifax, 36; Haywood, 15; Henderson, 1; Johnston, 4; Lenoir, many; Martin, a few; Mecklenburg; Mitchell, many; New Hanover, 7; Onslow; Person, 5; Pitt, 12; Randolph, 12; Rockingham, a few; Rowan, 5; Sampson, 2; Stanly, several; Wake, 8; Warren, 2; Wilkes, 1; Wilson, 2; Yancey, several—39 counties.

TYPHOID FEVER.—Alleghany; Ashe, 40; Bladen, 3; Caldwell, 11; Caswell, 1; Catawba, 1; Columbus, 4; Craven, 4; Cumberland; Currituck, a few; Dare, 3; Davidson; Duplin, 3; Durham, 4; Edgecombe, a few; Forsyth; Franklin; Harnett, 4; Haywood, 3; Hertford, 3; Iredell, 1; Jackson, 2; Lenoir, many; Lincoln, a few; McDowell, 1; Martin, a few; Mecklenburg; Mitchell, many; Montgomery, 7; Nash, 6; New Hanover, 5; Onslow; Person; Randolph, 5; Richmond, 1; Robeson, a few; Rockingham; Rowan, 3; Rutherford, 9; Sampson, a few; Scotland, a few; Stanly, 6; Union, a few; Wake, 9; Warren, 1; Watauga, 3; Wilkes, 13; Yadkin, 1; Yancey, a few—49 counties.

MALARIAL FEVER.—Craven; Currituck; Edgecombe, in all parts; Gates; Halifax; Hertford; Johnston; Onslow, in all parts; Person; Washington—10 counties.

MALARIAL FEVER, PERNICIOUS.—Onslow, 1.

MALARIAL FEVER, HEMORRHAGIC.—Craven, 2; Onslow, several; Washington, 2.

INFLUENZA.—Caswell; Davie, in all parts; Halifax; Hertford; Johnston; Lincoln; New Hanover, in all parts—7 counties.

PNEUMONIA.—Alleghany; Burke, a few; Cabarrus, 2; Camden, 1; Caswell; Chowan, 1; Davidson; Gates, 1; Lenoir, many; Lincoln, in all parts; Martin; Mecklenburg; Transylvania, several; Union, a few; Wake, 10; Warren, 4; Yancey, a few—17 counties.

MUMPS.—Stanly, several.

TONSILLITIS.—Currituck, Montgomery and Sampson.

VARICELLA.—Alamance.

SMALLPOX.—Chowan, 3; Clay, 5; Columbus, 4; Craven, 1; Cumberland, 17; Durham, 2; Gates, 1; Hyde, 100; New Hanover, 10; Pasquotank, 8; Person, 1; Stanly, 2; Union, epidemic; Washington, 60; Watanga, 5—15 counties.

CHOLERA, IN HOGS.—Chowan, Clay and Jackson.

DISTEMPER, IN HORSES.—Ashe.

No diseases reported from Bertie, Brunswick, Cherokee, Granville, Northampton and Orange.

No reports received from Alexander, Beaufort, Chatham, Cleveland, Gaston, Jones, Macon, Madison, Moore, Pamlico, Peuder, Perquimans, Polk, Surry and Swain.

SUMMARY OF MORTUARY REPORTS FOR NOVEMBER, 1905.**SEVENTEEN TOWNS.**

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population	93,200	57,200	150,400
Aggregate deaths	82	101	183
Representing temporary annual death-rate per 1,000	10.5	21.2	13.9
<i>Causes of Death.</i>			
Typhoid fever	5	2	7
Malarial fever	2	1	3
Whooping-cough	0	1	1
Pneumonia	14	7	21
Consumption	7	15	22
Brain diseases	3	6	9
Heart diseases	9	10	19
Neurotic diseases	4	2	6
Diarrheal diseases	4	11	15
All other diseases.....	30	43	73
Accident	4	3	7
	—	—	—
	82	101	183
Deaths under five years.....	14	33	47
Still-born	5	8	13

Mortuary Report for November, 1905.

TOWNS AND REPORTERS.		POPULA- TION.	TEMPORARY ANNUAL DEATH-RATE PER 1,000.			Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	TOTAL DEATHS.		
			RACES.	By Races.	Total.																By Towns.	Deaths under five years.	Still-born.
Charlotte.....	W. Dr. F. O. Hawley.	12,000 8,000	20,000	11.0 21.0	15.0	1														14	25	33	32
Durham.....	W. Dr. T. A. Mann.	12,000 6,000	18,000	13.0 12.0	12.7	1														6	19	3	3
Edenton.....	W. Dr. T. J. Hoskins.	1,500 2,500	4,000	8.0 19.2	15.0															2	1	1	1
Elizabeth City.....	W. Dr. H. D. Walker.	6,000 4,000	10,000	10.0 21.0	14.4		1												4	12	12	12	
Fayetteville.....	W. Dr. A. S. Rose.	3,500 2,500	6,000	3.4 14.4	8.0														1	1	1	1	
Greensboro.....	W. J. S. Michaux, C. Cl.	10,000 5,000	15,000	12.0 43.2	22.4	2													3	1	1	1	
Marion.....	W. Dr. B. L. Ashworth.	1,500 100	1,600	0.0 0.0	0.0														0	0	0	0	
Monroe.....	W. Dr. Jno. M. Blair.	2,500 900	3,400	4.8 0.0	3.5														1	1	1	1	
Oxford.....	W. Dr. S. D. Booth.	1,400 1,400	2,800	8.7 34.3	21.4														1	5	4	4	
Salem.....	W. S. E. Butner, Supt. H.	3,400 400	3,800	7.1 0.0	6.3														1	1	2	2	
Salisbury.....	W. Dr. H. T. Trantham.	7,400 3,600	11,000	9.7 6.7	8.7	2													1	2	8	1	
Tarboro.....	W. Dr. S. N. Harrell.	2,500 1,000	3,500	4.8 108.0	34.3														1	10	9	9	
Wadesboro.....	W. Dr. J. H. Bennett.	1,200 800	2,000	10.0 0.0	6.0														1	1	0	0	
Washington.....	W. Dr. John G. Blount.	3,500 3,000	6,500	10.3 0.0	5.5														2	3	3	1	
Wilmington.....	W. Dr. Chas. T. Harper.	11,000 10,050	21,000	18.5 21.6	20.0	1													1	7	17	2	
Wilson.....	W. Dr. W. S. Anderson.	3,800 3,000	6,800	12.6 12.0	12.3														4	1	7	3	
Winston.....	W. Dr. J. L. Hanes.	10,000 5,000	15,000	6.0 31.2	14.4														2	6	13	7	

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate : I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. George W. Long.	Jones.....	Dr. N. G. Shaw.
Alexander	Dr. C. J. Carson.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. John W. Saine.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. L. Ashworth.
Ashe.....	Dr. Manley Bleevins.	Macon	Dr. W. A. Rogers.
Beaufort	Dr. John G. Blount.	Madison	Dr. W. J. Weaver.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. E. Warren.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. Arthur Dosher.	Mitchell.....	Dr. Virgil R. Butt.
Buncombe	Dr. D. E. Sevier.	Montgomery	Dr. J. B. Shamburger.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. C. L. Wilson.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. C. G. Ferebee.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clarke.	Onslow.....	Dr. Cyrus Thompson.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. J. H. Taylor.	Pasquotank	Dr. J. B. Griggs.
Cherokee.....	Dr. J. A. Abernathy.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans	Dr. C. C. Winslow.
Clay	Dr. J. M. Sullivan.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. Joseph E. Nobles.
Columbus.....	Dr. H. B. Maxwell.	Polk	Dr. C. J. Kenworthy.
Craven.....	Dr. Joseph F. Rhem.	Randolph	Dr. A. M. Bulla.
Cumberland.....	Dr. A. S. Rose.	Richmond	Dr. L. D. McPhail.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. J. S. Brown.
Davie	Dr. M. D. Kimbrough.	Rutherford.....	Dr. E. B. Harris.
Duplin	Dr. A. J. Jones.	Sampson	Dr. J. O. Matthews.
Durham	Dr. T. A. Mann.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. S. N. Harrell.	Stanly.....	Dr. V. A. Whitley.
Forsyth.....	Dr. S. F. Pfohl.	Stokes	
Franklin	Dr. R. F. Yarborough.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. H. F. Glenn.	Swain.....	Dr. R. L. Davis.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham.....	Dr. M. J. Maxwell.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. Henry D. Stewart.
Greene.....	Dr. W. B. Murphy, Jr.	Vance.....	Dr. John Hill Tucker.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. W. McGee, Jr.
Halifax	Dr. I. E. Green.	Warren.....	Dr. P. J. Macon.
Harnett.....	Dr. L. J. Arnold.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. R. McCracken.	Watauga.....	Dr. H. McD. Little.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. William Spicer.
Hertford	Dr. Robert W. Smith.	Wilkes.....	Dr. John Q. Myers.
Hyde.....	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. M. R. Adams.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. William Self.	Yancey	Dr. J. B. Gibbs.
Johnston	Dr. Thel Hooks.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed? If so, state number of cases.

Whooping-cough -----	Typhoid Fever -----
Measles -----	Typhus Fever -----
Diphtheria -----	Yellow Fever -----
Scarlet Fever -----	Cholera -----
Pernicious Malarial Fever-----	Smallpox -----
Hemorrhagic Malarial Fever-----	Cerebro-spinal Meningitis-----

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.

BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., Pres., Wilmington.	T. E. ANDERSON, M. D.--Statesville.
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RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XX.

JANUARY, 1906.

No. 10.

THE SOURCES OF INFECTION.

BY DR. CHARLES V. CHAPLIN,

Superintendent of Health, Providence, R. I.

(Read at Annual Meeting of American Public Health Association).

What is the distribution of pathogenic organisms? The answer is as yet partial and imperfect, but the question is a vital one to health officers. Thus far too little attention has been given to its solution, and too little account has been taken of the knowledge we do possess. With the exception of the period of the dominance of the filth theory, the infectious diseases have for ages been deemed contagious. The contagion was in the body of the sick; hence public sanitation has been based on the isolation of the sick. Until twenty-five years ago we knew nothing about the nature of infection; to-day we know little about its distribution and less about its mode of transmission. How can we expect to attain any great success unless we have definite knowledge, and act upon it? It is of the utmost practical importance that we know how widely the pathogenic organisms are distributed. To succeed with isolation we must be able to control most, if not all, of the foci of infection. The degree of success varies inversely as to the number of unrecognized or uncontrollable sources of infection. One fact—and it is this to which your attention is particularly called—has been becoming more and more evident during the past

few years, and that is that the virus of many of our common diseases is much more widely distributed than was formerly supposed.

In the first place, it has become recognized that the mild, atypical and neglected cases of the contagious diseases are very numerous—perhaps more numerous than the well-defined cases which come under observation. Cases of mild sore throat which attend school or go about their work are more common than are the cases of diphtheria sick enough to send for a physician. Scarlet fever, with a slight fever for a day, a fleeting rash of a few hours' duration, and a little sore throat, are seen in every outbreak, and doubtless occur many times oftener when they are not seen. "Walking cases" of typhoid are being discovered in greater numbers each year. Wherever the best diagnostic methods are followed, there the number of cases apparently increase and the fatality apparently decreases. The investigation into the cause of this disease among the United States troops during the Spanish war rendered it almost certain that the unrecognized cases were nearly double the number of the recognized cases. The pathologists tell us that healed tuberculosis lesions are found in a large proportion of autopsies of persons who were never suspected of having tuberculosis. Cases of yellow fever so mild as to escape notice are not uncommon. Bubonic plague also in many instances produces only a few slight symptoms, easily overlooked.

We have few numerical data to show how numerous these unrecognized cases of contagious diseases are, but the typhoid investigations of the Spanish war, already referred to, suggest that in that disease they may be twice as numerous as the known cases. As regards diphtheria, some interesting facts may be found in the reports of the Board of Health of Hartford. In that city, during the years 1900-1903, the school inspectors took cultures from the mild sore throats seen in the schools. Of the 2,038 cultures taken, 591, or 29 per cent., were positive. Of course no one believes that all the infected throats were found by the inspectors, and of course there were many mild cases of diphtheria in others than school children. During the same period there were reported in the usual way in Hartford 1,537 cases of diphtheria, and it is certainly not unfair to assume that the cases unseen or unrecognized by physicians were fully as numerous.

Secondly, it has been equally well established—though it is so unpalatable a truth as to receive scant favor—that well persons are frequently infected with virulent pathogenic organisms. Owing to the immunity of the individual, or to the fact that the organisms are growing in the secretions or on mucous surfaces without being able to penetrate the tissues, it happens that this cultivation of disease germs is frequently going on in persons who are perfectly well. That such persons are a menace to others, and indeed often to themselves, there is every theoretical reason for believing. Moreover, it is in accord with practical experience, for numerous cases are on record where the infection in various diseases has been traced to well per-

sons. There is no well-defined line between sickness and health, so far as infection is concerned. Starting with a malignant and rapidly fatal case of diphtheria or typhoid fever, we have every gradation of severity until the symptoms become so mild as to be scarcely recognized, and finally are entirely absent. The degree of danger to others may depend partly on the severity of the diseases, but more upon the number of pathogenic organisms thrown off, and upon their virulence. But we know that even in persons perfectly well the discharge of disease germs may be as great or even greater than in cases of the most malignant type; and as for virulence, we know that the germs growing in the mildest cases may possess a very high degree of virulence, as witness the diphtheria bacillus isolated by Park from a mild sore throat and now universally employed by antitoxin makers because of its high toxin-producing power. It is to the distribution of the organism of this disease that the writer has given the most attention. It seems to be the fact, as was to be expected, that the more closely well persons are associated with diphtheria the more likely they are to be infected. The association of persons in institutions, particularly of young children, has frequently resulted in the infection of nearly all the inmates, and this infection has sometimes continued for months and even years. There are very few facts available as to the degree of infection of the well persons in a diphtheria family. The most extensive are those from Providence. Of 2,504 adults in the family, 11.4 per cent. were infected. Of 310 children between five and fifteen years of age—the school age—19 per cent. were infected. When it is remembered that most of the examinations were made at the time the case was reported, or for purposes of release, and that in most cases only a single throat culture was taken, it is only reasonable to assume that in the family 50 per cent. of the children and 25 per cent. of the adults are infected without becoming sick. As regards the presence of diphtheria bacilli among that portion of the general public who have not, so far as known, been recently exposed to diphtheria, the investigations of the Massachusetts Association of Boards of Health are fairly conclusive. Of 4,250 persons examined, 2.89 per cent. showed typical diphtheria bacilli. The percentage varied from 6.93 per cent. in Minnesota, where diphtheria was exceptionally prevalent, to .43 per cent. in Providence, where most of the examinations were made in schools where there had been no diphtheria for months or years. There can be no question that in our large Northern cities the number of well persons infected with virulent diphtheria bacilli is many times greater than the number of recognized cases of the disease. The latter are isolated, the former are not. Which are likely to do most to spread the disease?

But it is not only with diphtheria that well persons are infected. Numerous observations have shown that the bacilli of typhoid are found not only in the sick, but that they often persist for a long time

in the feces and urine of convalescents. So we find that we are trying to restrict the disease by disinfecting the stools while the patient is safely in bed, but doing nothing when he is well enough to be about and is spreading the germs broadcast over the land. Recent studies in Germany have shown that not only are convalescents infected, but that the bacilli are frequently found in the excreta of members of the infected family who remain perfectly well. This is particularly true of children. If we succeeded in perfectly disinfecting the excreta of the patients who are in bed—which, by the way, is very often not accomplished—we should be applying this restrictive measure to only a small proportion, and that the least dangerous of the foci of infection. It was believed that the typhoid in the United States army in the Spanish war had its origin in infected well persons who were doubtless to be found in every regiment. What has been said of typhoid applies equally as well to cholera, for the spirillum of this disease, too, is found in convalescents and in well persons.

It is well known that the influenza bacillus is very widely distributed in human beings. It is found persisting for months and years in chronic cases; and in Boston, even in a year when the disease was not epidemic, it was found in 60 per cent. of all catarrhal cases examined. Doubtless it was found in large numbers of well persons, though data on this point are wanting. We know also that the pneumococcus is very widely distributed among well persons. In quite another type of disease we know from definite observations that well persons are the principal source of its extension. In tropical regions the native children are usually found to be severely infected with the parasite of malaria, yet without showing any symptoms, and it is from them that the *Anopheles* carry it to unacclimated foreigners.

We have no bacteriological evidence as to the distribution of the virus of scarlet fever, measles and smallpox in well persons, but there are some clinical reasons for thinking that the virus of scarlet fever may develop in persons perfectly well. This may also be true of smallpox, though it is probable that well persons are less often infected, if they are infected at all, than they are in most other diseases.

Thirdly, there is the question of the infection of other animals than man. In the case of malaria and yellow fever we know that mosquitoes are infected, and this fact has been of the utmost value to us. In plague, rats and fleas are infected, though their exact relation to the disease in man is not as clear as we could wish. Yet this knowledge, too, has been most useful. As regards the other common contagious diseases, we know almost nothing about their distribution among animals.

Fourthly, there is the question of the growth of pathogenic organisms outside of the animal body. Here, again, our knowledge is very scanty. We know that many disease germs will, under favorable

conditions, *live* for some time outside the body, though exaggerated notions about this are quite generally entertained. We have little evidence as to their reproduction outside of the body, and the indications are that for most diseases this rarely occurs.

Lastly, there is another question which is of *great* importance, and that is the question of the permanency of type or species among bacteria. Are the different members of colon group, for instance, of the diphtheria group, or the dysentery group, capable of changing from one type to another? Can the Hoffman bacillus become a Klebs-Loeffler bacillus, and the colon change to a para-typhoid? And we need more than an academic answer to this question. If it can be shown that such changes *can* be produced, we must ask, further, how often *do* they take place in nature, and under what conditions?

To summarize, it may be said that, in regard to all these matters, but particularly in regard to the distribution of pathogenic organisms in animals, their reproduction outside of animal bodies and their permanency of type, our knowledge is deplorably scanty, and we are impatiently looking to our laboratory workers and the general biologists for answers to our questions. But, in regard to mild and atypical forms of disease, and in regard to the prevalence of infection among well persons, we have sufficient data to give cause for serious reflection. We can certainly affirm that mild, unreported, unrecognized and unrecognizable cases of contagious disease are very numerous, and that infected well persons are more numerous still, and that together they far outnumber the reported cases and constitute by all odds the most important foci for the extension of disease. It seems a hopeless task to try to teach these truths to the laity, and almost as hopeless to teach them to physicians, for unpalatable truths are difficult to teach. And who would even try to convince a court of the danger of infection from people who had never been sick? And yet all official restriction must in the last resort receive judicial sanction. That infection must be closely limited by sickness is an error which even many of the most recent text-books and many of our most advanced medical schools have done little to correct.

If it is true that infection is so widely distributed—so much more widely distributed than we formerly supposed—is it not possible that it will be necessary for us to revise our methods of combating it? In considering this subject it must be remembered, first of all, that we are not dealing with a moral question; no principle is involved. Diphtheria and scarlet fever are not crimes to be punished. The measures that are taken must be justified in the results attained. It is a hardship and expense to remove people forcibly to the hospital, to shut them up in their houses, to disinfect, to keep children from school and wage-earners from their work. Such methods should not be adopted unless there is reasonable ground for expecting results commensurate with the outlay, and should be abandoned or modified if these results are not forthcoming.

It is to isolation and disinfection that your attention is here particularly directed. Have we as yet attained a proper conception of the scope and value of these procedures? It is perfectly plain that if we could isolate every case of a given contagious disease until all infection had disappeared, the disease would not merely decrease, it would be exterminated. If we can only control one-half, one-quarter or one-tenth of the foci of infection, it is equally clear that the disease will never be exterminated, and it is not even certain that it will diminish. The relation of probable success to the efforts made must decide the extent of those efforts. It is the writer's opinion that for most diseases and for most localities these restrictive measures are either carried too far or are not carried far enough.

Perhaps the problem can be best understood by considering it in relation to diphtheria, a disease which we know more about than we do about any other of the common diseases which health officers have to deal with in the north temperate zones of Europe and America. If a single case of this disease should be reported in a community where there had been none for a long time, the duty of the health authorities would be clear. It would be advisable to isolate the patient and examine all contacts or persons who had been exposed, and to isolate them if necessary, to search diligently for hidden or neglected cases of sore throat and examine all such by repeated cultures from throat and nose. All persons harboring diphtheria bacilli should be then isolated until throat and nose cultures taken on several successive days prove negative. Directions for the management of the sick-room, such as are usually given in the orthodox circular, but rarely followed, should be carried out, and after release from isolation probably some disinfection would be desirable. Such strictness is rarely attempted, and, when it is, is not always successful. It may not be successful because the persons involved rebel before success is attained, or because, notwithstanding the strictness, some focus of infection remains unknown. Nevertheless, under the conditions named, the most energetic measures should be taken to stamp out the disease, and in very many—probably in most—instances they would be crowned with success.

Almost all cities of from say 20,000 inhabitants upward, and many with a much smaller population, present far different conditions. In such communities diphtheria has been endemic or epidemic, as one may choose to call it, for years. There are always a certain number of reported cases, and probably the number of unreported or unrecognized cases of a mild type is equal or even greater, and the number of well persons infected with virulent bacilli is greater still. He would be rash indeed who would attempt to apply the methods before indicated. It would almost certainly be found impossible to carry them out. The people would not submit, the co-operation of the medical profession would be lost, and in the last resort the work would be stopped by the courts. To isolate in a large city all or even

half the people infected with diphtheria is impossible. But without isolating all, or at least all but an extremely small percentage, it is impossible to stamp out the disease. It never has been stamped out in any city of considerable size. What, then, can be hoped for from restrictive measures? It may be hoped that in such cities they will restrict, even if they do not exterminate. The writer firmly believes that restrictive measures, as practiced in our cities during the last twenty years, have greatly diminished the amount of this and similar diseases. It is possible also that they have modified the type, lessening its severity. But during this period of diminishing prevalence our restrictive measures have been steadily increasing in severity. The writer believes that all the advantages gained could be retained, even though much milder methods should be employed. To placard a house keeps people out and teaches the contagious nature of the disease; removal to a hospital, of those who care to go, certainly prevents many cases; keeping children from the infected family out of school does some good. But to maintain isolation until there is no possibility of infection, to exclude all wage-earners from their work, to shut the entire family in the house, to make hospital treatment universal, to spend large sums for disinfection, although ideals for which many health officers are striving, would seem to be unnecessary and illogical. It is not intended that these suggestions are final, but only that the simpler and less burdensome restrictions are desirable, and that, under the conditions mentioned, stringent measures are not justified for the control of this disease. Why should a man who has recovered from diphtheria be confined in his house for weeks, and perhaps months, because he has virulent diphtheria bacilli in his throat, when it is certain that there are hundreds of others in his city with like bacilli who have never been confined at all? He is sure to ask this question with much irritation. It is asked here in all seriousness. Will the treatment of 90 per cent. of all cases in the hospital avail more than placarding and the removal of the poor only? The history of English cities indicates that it will not, and hospital treatment costs large sums of money. Is it necessary or useful to keep wage-earners from their work, except in certain lines of occupation, when there are so many unrecognized foci of infection? Shall the physician be required, as has been proposed, to frighten his little patients with rubber coats and boots and a mask, when so many people, and perhaps even the doctor, are carrying the germs about in their throats? In a large city what proportion of cases contract the disease from infected rooms or their contents, as compared with the number that contract it more directly from well persons or diphtheritic sore throats? Certainly it is a very small fraction. Yet the writer could name a city where \$1,000 was spent for disinfection and \$1,000 for a medical inspector, and another which boasted of the efficiency of its disinfection, but was the last of the large cities to employ a bacteriologist. Might it not be wise, perhaps,

to cut down this expense a little and employ some one to examine into the necessity for and the value of disinfection? In all our large cities a moderate amount of restriction, for a moderate length of time, will accomplish just as much as more stringent measures. To determine specifically what is best in each procedure is indeed a difficult task.

The epidemiology of scarlet fever appears to be very similar to that of diphtheria, and it requires about the same degree of restriction. Measles and whooping-cough are still more difficult to deal with, because most of the harm is done before there is a possibility of any control. In pneumonia and influenza, owing to the wide distribution of the specific organisms, isolation can accomplish little, and official control, in the present state of our knowledge, practically nothing. Probably there is more logical reason for isolation in consumption than in any of the diseases mentioned, because the early and unrecognized cases do not discharge as many bacilli as the more advanced cases, but such isolation is not attempted simply because it is hopeless. We content ourselves with teaching the patients to care for their secretions. Perhaps that is our best hope in the other diseases mentioned.

No attempt is here made to decide upon just what measures are best suited for the control of different diseases, for this would be to set forth the whole art of sanitation, but, by the foregoing illustrations, to call attention to the illogical and unwise character of many common procedures. What is especially insisted on is that the virus of many diseases is much more widely distributed than was formerly supposed. This is a discouraging fact, but one that must be reckoned with. It is also insisted on—and this is the crucial point of the whole matter—that a disease with widely distributed and uncontrollable foci of infection does not call for stringent measures of isolation and disinfection.

REVIEW OF DISEASES FOR DECEMBER, 1905.

EIGHTY-SIX COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of December the following diseases have been reported from the counties named:

MEASLES.—Bladen, a few cases; Caldwell, 191; Chatham, 6; Durham, 2; Gates, several; Guilford, 3; Mecklenburg, 12; Person, a few; Randolph, 10; Richmond; Scotland, many; Union; Wayne, epidemic; Yancey, a few—13 counties.

WHOOPING-COUGH.—Alleghany, 15; Burke, a few; Caldwell, 51; Caswell, several; Chatham, 50; Duplin, 10; Forsyth, a few; Gates; Graham, 2; Guilford, 2; Johnston, a few; Lincoln, a great many; Madison, a few; Mecklenburg, 6; Montgomery, 15; Orange, 2; Rutherford, many; Stanly, many; Union; Vance, a few; Wake, 3; Wilkes, 50—22 counties.

SCARLATINA.—Alleghany, 10; Ashe, 5; Buncombe, 6; Caldwell, 3; Cumberland, a few; Durham, 2; Edgecombe, 2; Forsyth, a few; Mitchell, several; Rowan, 1; Surry, 2; Union, 1; Wilkes, 4—13 counties.

DIPHTHERIA.—Anson, 2; Bladen, 1; Buncombe, 1; Carteret, many; Caswell, 3; Chatham, 2; Cleveland, a few; Craven, 1; Cumberland, 2 or 3; Davie, 1; Duplin, 6; Durham, 1; Edgecombe, 1; Forsyth, many; Guilford, 2; Halifax, 6; Hertford, 1; Jackson, 4; Macon, 15; New Hanover, 2; Northampton, 3; Onslow, a few; Orange, 1; Pitt, 10; Randolph, 2; Rowan, 3; Rutherford, 2; Sampson, 1; Stanly, a few; Surry, 1; Wilkes, 4; Yancey, a few—32 counties.

TYPHOID FEVER.—Alleghany, 3; Anson, several; Ashe, 3; Bladen, 1; Caldwell, 10; Cleveland, a few; Cumberland, in all parts; Dare, 3; Durham, 3; Forsyth, many; Franklin, several; Greene, 3; Guilford, 2; Harnett, 10; McDowell, 3; Macon, 1; Madison, a few; Mecklenburg; Mitchell, many; Montgomery, 3; New Hanover, several; Onslow, 1; Randolph, 5; Richmond, a few; Robeson, a few; Stanly, 2; Surry, 3; Wake, 1; Wilkes, 2; Yancey, several—29 counties.

MALARIAL FEVER.—Gates, 3; Halifax; Hertford; Mecklenburg; Onslow; Pender; Sampson; Transylvania—8 counties.

MALARIAL FEVER, PERNICIOUS.—Sampson, a few; Transylvania, a few.

MALARIAL FEVER, HEMORRHAGIC.—Onslow, several; Pender, 1.

BOWEL DISEASES.—Gates.

INFLUENZA.—Alamance; Alleghany; Ashe, in all parts; Dare; Davie, in all parts; Franklin; Halifax; Lincoln, Macon, New Hanover, Warren, in all parts; Wilkes; Yadkin—13 counties.

PNEUMONIA.—Alamance; Alleghany, 5; Anson, 18; Bladen, 3; Brunswick, 2; Burke, in nearly all parts; Cabarrus, 10; Caswell; Chatham, 2; Cherokee, great many; Cleveland; Duplin, 2; Franklin; Graham, in all parts; Granville; Halifax; Henderson, 1; Johnston, in all parts; Lincoln, in all parts; Martin, several; Mecklenburg; Pender, several; Person, a few; Randolph; Sampson; Union, a few; Wake, in all parts; Warren, 5; Wilkes—29 counties.

MENINGITIS, CEREBRO-SPINAL.—Martin, 1.

MUMPS.—Halifax.

TONSILLITIS.—Burke.

SMALLPOX.—Anson, 5; Bertie, many; Bladen, 6; Buncombe, 4; Camden, 1; Chowan, 8; Craven, 4; Cumberland, 68; Harnett, 1; Hertford, 75; Hyde, 150; Mecklenburg, 6; New Hanover, 14; Pasquotank, 5; Perquimans, many; Scotland, a few; Union, epidemic in one township; Washington, 20; Wayne, 7—19 counties.

CHOOLERA, IN CHICKENS.—Gates.

CHOOLERA, IN HOGS.—Camden, Chowan, Gates, Jackson.

DISTEMPER, IN HORSES.—Ashe, Burke, Jackson.

No diseases reported from Catawba, Clay, Davidson, Haywood, Iredell, Nash, Polk, Rockingham, Swain, Watauga and Wilson.

No reports received from Alexander, Beaufort, Columbus, Currituck, Gaston, Jones, Lenoir, Moore and Pamlico.

SUMMARY OF MORTUARY REPORTS FOR DECEMBER, 1905.

TWENTY-FOUR TOWNS.

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population	108,900	68,250	177,150
Aggregate deaths	98	136	234
Representing temporary annual death-rate per 1,000	10.8	23.8	15.8
<i>Causes of Death.</i>			
Typhoid fever	2	2	4
Malarial fever	0	1	1
Diphtheria	3	0	3
Whooping-cough	1	1	2
Measles	1	0	1
Pneumonia	11	15	26
Consumption	11	23	34
Brain diseases	9	7	16
Heart diseases	8	14	22
Neurotic diseases	6	4	10
Diarrhoeal diseases	0	7	7
All other diseases.....	39	55	94
Accident	5	6	11
Suicide	2	0	2
Violence	0	1	1
	98	136	234
Deaths under five years.....	25	43	68
Still-born	9	16	25

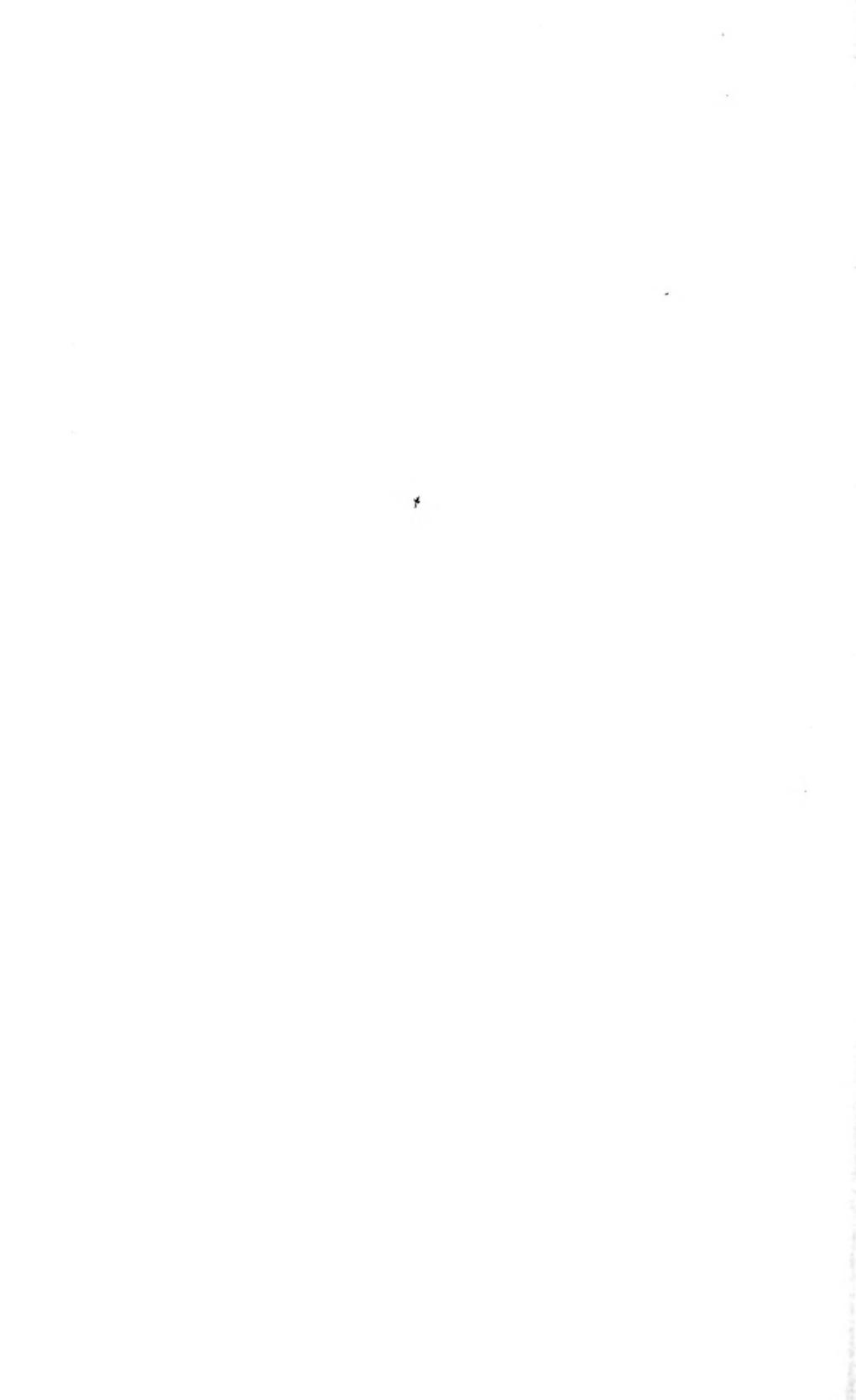
Mortuary Report for December, 1905.

TOWNS AND REPORTERS.	POPULA- TION.	TEMPORARY ANNUAL DEATH-RATE PER 1,000.																					
		By Races.	Total.	By Races.	Total.	Typhoid Fever.	Scarlet Fever.	Malaria Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths.	Deaths under five years.	Still-born.
Charlotte{ Dr. F. O. Hawley.	W. 12,000 C. 8,000	20,000	10.0 19.5	13.8																	10	4	3
Durham{ Dr. T. A. Mann.	W. 12,000 C. 6,000	18,000	9.0 28.0	15.3	1			1				1	3	3	1					13	23	5	1
Edenton{ Dr. T. J. Hoskins.	W. 1,500 C. 2,500	4,000	0.0 14.4	9.0																0	3	3	3
Elizabeth City{ Dr. H. D. Walker.	W. 6,000 C. 4,000	10,000	4.0 21.0	10.8															2	7	9	1	
Fayetteville{ Dr. A. S. Rose.	W. 3,500 C. 2,500	6,000	17.1 19.2	18.0															5	4	9	2	
Greensboro{ J. S. Michaux, C. Cl.	W. 10,000 C. 5,000	15,000	9.6 33.6	17.6								1	2						8	22	3	1	
Goldsboro{ Robt. A. Creech, H. O.	W. 5,000 C. 3,000	8,000	7.2 24.0	13.5								1							3	6	9	2	
Henderson{ Dr. G. A. Coggeshall.	W. 2,000 C. 2,200	4,200	6.0 32.7	20.0								1							1	6	7	2	
Lexington{ J. H. Moyer, Mayor.	W. 3,000 C. 600	3,600	0.0 20.0	3.3								1							0	1	1	1	
Marion{ Dr. B. L. Ashworth.	W. 1,500 C. 100	1,600	8.0 0.0	7.5								1							0	1	1	1	
Monroe{ Dr. Jno. M. Blair.	W. 2,500 C. 1,000	3,500	0.0 0.0	0.0															0	0	0	0	
Oxford{ Dr. S. D. Booth.	W. 1,400 C. 1,400	2,800	8.6 34.3	21.4															1	5	1	1	
Raleigh{ T. P. Sale, Clerk B. H.	W. 9,000 C. 7,000	16,500	20.0 18.8	19.5				1	1	2	1	1	1	1	1	1	1	7	15	26	6		
Rocky Mount{ Dr. L. C. Covington.	W. 3,500 C. 1,500	5,000	3.4 8.0	4.8								1							1	1	2	1	
Salem{ S. E. Butner, Supt. H.	W. 3,400 C. 400	3,800	7.0 0.0	6.3														2	0	2	1		
Salisbury{ Dr. H. T. Trantham.	W. 7,400 C. 3,600	11,000	11.2 6.7	9.8				1		1	1	2						2	7	9	1		
Southport{ Dr. J. A. Dosher.	W. 900 C. 500	1,400	0.0 72.0	25.7								2	1						0	3	3	1	
Tarboro{ Dr. S. N. Harrell.	W. 2,500 C. 1,000	3,500	9.6 48.0	20.6								1							2	6	5	1	
Wadesboro{ Dr. J. H. Bennett.	W. 1,200 C. 800	2,000	20.0 0.0	12.0								3	1						2	2	1	1	
Washington{ Dr. John G. Blount.	W. 3,500 C. 3,000	6,500	17.1 32.0	24.0								1	2	1					5	13	1	2	
Waynesville{ Dr. Thos. Stringfield.	W. 1,600 C. 400	2,000	7.5 0.0	6.0														1	1	1	1		
Weldon{ J. T. Gooch, Mayor.	W. 700 C. 750	1,450	0.0 17.3	8.3														0	1	1	1		
Wilmington{ Dr. Chas. T. Harper.	W. 11,000 C. 10,000	21,000	19.6 38.4	28.6	1							3	2	5	5	2	18	50	4	1	7		
Wilson{ Dr. W. S. Anderson.	W. 3,800 C. 3,000	6,800	15.8 8.0	12.3	1							1	2					1	5	7	1		

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the **whole** number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. George W. Long.	Jones.....	Dr. N. G. Shaw.
Alexander	Dr. O. L. Hollar.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. R. W. Petrie.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. L. Ashworth.
Ashe.....	Dr. Manley Blevins.	Macon	Dr. W. A. Rogers.
Beaufort	Dr. John G. Blount.	Madison	Dr. W. J. Weaver.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. E. Warren.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin
Brunswick	Dr. J. Arthur Dosher.	Mitchell.....	Dr. Virgil R. Butt.
Buncombe	Dr. D. E. Sevier.	Montgomery	Dr. J. B. Shamburger.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. C. L. Wilson.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. C. G. Ferebee.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clarke.	Onslow.....	Dr. Cyrus Thompson.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. J. H. Taylor.	Pasquotank	Dr. J. B. Griggs.
Cherokee.....	Dr. J. A. Abernathy.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans	Dr. C. C. Winslow.
Clay	Dr. J. M. Sullivan.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. Joseph E. Nobles.
Columbus.....	Dr. H. B. Maxwell.	Polk	Dr. C. J. Kenworthy.
Craven.....	Dr. Joseph F. Rhem.	Randolph	Dr. A. M. Bulla.
Cumberland.....	Dr. A. S. Rose.	Richmond.....	Dr. L. D. McPhail.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson.....	Dr. Joel Hill.	Rowan.....	Dr. J. S. Brown.
Davie	Dr. M. D. Kimbrough.	Rutherford.....	Dr. E. B. Harris.
Duplin	Dr. A. J. Jones.	Sampson	Dr. J. O. Matthews.
Durham	Dr. T. A. Mann.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. S. N. Harrell.	Stanly.....	Dr. J. N. Anderson.
Forsyth.....	Dr. S. F. Pfohl.	Stokes	
Franklin	Dr. R. F. Yarborough.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. H. F. Glenn.	Swain.....	Dr. R. L. Davis.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. M. J. Maxwell.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. Henry D. Stewart.
Greene.....	Dr. W. B. Murphy.	Vance.....	Dr. John Hill Tucker.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. W. McGee, Jr.
Halifax	Dr. I. E. Green.	Warren.....	Dr. P. J. Macon.
Harnett.....	Dr. L. J. Arnold.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. R. McCracken.	Watauga.....	Dr. H. McD. Little.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. J. B. Outlaw.
Hertford	Dr. Robert W. Smith.	Wilkes.....	Dr. John Q. Myers.
Hyde.....	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. M. R. Adams.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. William Self.	Yancey	Dr. J. B. Gibbs.
Johnston	Dr. Thel Hooks.		



[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed? If so, state number of cases.

Whooping-cough -----	Typhoid Fever -----
Measles -----	Typhus Fever -----
Diphtheria -----	Yellow Fever-----
Scarlet Fever -----	Cholera -----
Pernicious Malarial Fever-----	Smallpox-----
Hemorrhagic Malarial Fever-----	Cerebro-spinal Meningitis-----

What have been the prevailing diseases in your practice?

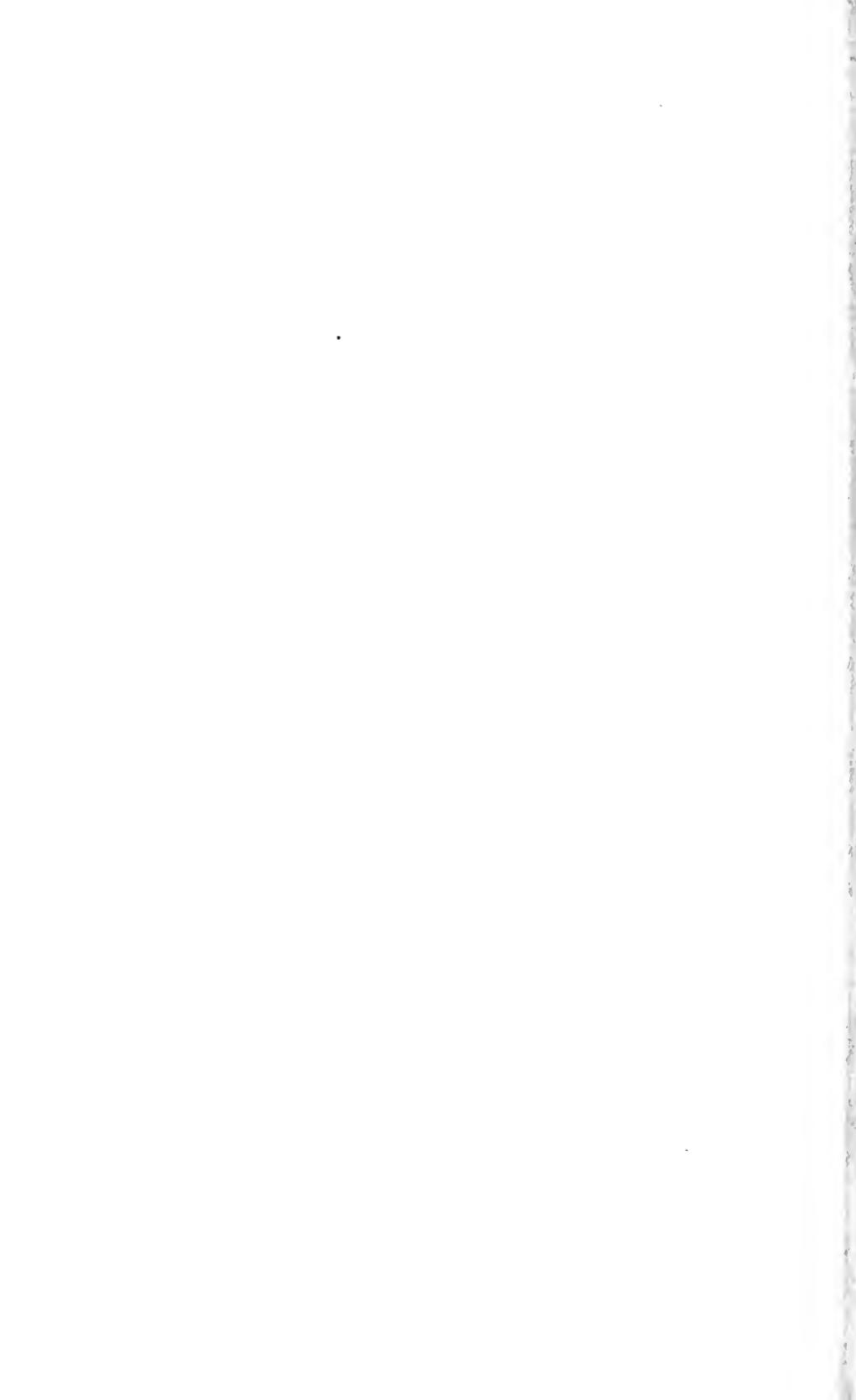
Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: -----

----- M. D.

----- 190 ----- N. C.



BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., Pres., Wilmington. T. E. ANDERSON, M. D.—Statesville.
S. WESTRAY BATTLE, M. D.—Asheville. J. HOWELL WAY, M. D.—Waynesville.
HENRY W. LEWIS, M. D.——Jackson. W. O. SPENCER, M. D.——Winston-Salem.
W. P. IVEY, M. D. ———Lenoir. J. L. LUDLOW, C. E. ———Winston-Salem.
RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XX.

FEBRUARY, 1906.

No. 11.

PATENT MEDICINES AGAIN.

It is gratifying to note in many directions the awakening of the people at last to the manifold evils of patent medicines. Physicians have always known their true character, and the risks run by so many people in using them, but their warnings have fallen on deaf ears, the laity claiming that their criticisms were due to self-interest. We remember that when we began practice and inserted our professional card in one of our leading religious papers the associate editor, a well-educated gentleman, our warm personal friend and collegiate, said some kind things about us in his editorial columns. Immediately following this, however, was a notice twice as long and much more laudatory, of a patent medicine. When he was called to account by an indignant medical subscriber his only comment was: "Of course, physicians are opposed to patent medicines because they hurt their practice." And that is the most discouraging thing of all—that men of intelligence and attainments and of excellent discrimination in most matters should allow themselves to be "bamboozled" by the advertisement of quack medicines. It is said that every person who has reached the age of forty is either "a fool or a physician," and the number of physicians is limited.

But the laity are waking up now and some of our most influential and widely-circulated journals, notably *Collier's Weekly* and the *Ladies' Home Journal*, are taking up the fight against them. The element of self-interest does not enter into the question with them, but

they are actuated solely by the desire to expose fraud and to save the people from the dangers that lurk in too many secret remedies. Upon reference to the article by our biologist, Dr. McCarthy, in THE BULLETIN for May, 1905, the interested reader will find a list of patent medicines analyzed by the Massachusetts Board of Health and giving the per cent. of alcohol found in them. But alcohol is not the only dangerous element to be found in these secret remedies, for some contain opium or cocaine or other form of dope. And it is because of their contents that many well-meaning people in all innocence—and ignorance—are seduced into habits destructive of both soul and body.

There is no sound argument against requiring the printing on the label of the exact formula, and this should be required by both the Federal and State governments. We are, therefore, much pleased to know that such a bill has been introduced in Congress by Hon. E. Y. Webb, our virile, progressive, patriotic member of the House of Representatives from the Ninth District. It is an excellent bill, and we print it below. Following that we copy from the *Ladies' Home Journal* some "Good Reasons Why Better Laws are Needed" and "Some Arguments Tersely Presented."

A BILL REQUIRING SHIPPERS AND MANUFACTURERS OF MEDICINE FOR INTERSTATE SHIPMENT TO LABEL SAID MEDICINE AND PRINT THEREON THE INGREDIENTS CONTAINED IN SUCH MEDICINE.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled:

That any person, firm or corporation who shall ship or deliver for shipment from any State or Territory or the District of Columbia any patent or proprietary medicine, or any other secret medicinal compound, shall place on each bottle or package of such medicine a label on which shall be printed in the English language the name of each ingredient contained in such bottle or package of medicine; and if such medicine or medicinal compound shall contain opium, or any of the preparations of opium, cocaine or salts of cocaine, or preparation of cocaine or morphine, or preparations of morphine, or salts of morphine, or chloral, or any of the preparations of chloral, or alcohol, or eucaine, or heroin, then in such cases the quantity of these drugs contained in each bottle or package of such medicine shall be printed on the label in the English language.

SEC. 2. That every person, firm or corporation who manufactures or produces, and delivers for interstate shipment or transportation to any State, Territory, or the District of Columbia, other than the State, Territory or the District of Columbia in which it is manufactured, any patent or proprietary medicine, or any other secret medicinal compound, shall place on each bottle or package of such medicine a label on which shall be printed in the English language the name of each ingredient contained in such bottle or package of medicine; and if such medicine contains opium or the preparations of opium, chloral,

cocaine, eucaine, heroin, or alcohol, then in such cases the quantity of these drugs contained in each bottle or package of such medicine shall be printed on the label in the English language.

SEC. 3. That this act shall not be construed to interfere with commerce within the State where such medicine or drug is manufactured, nor with the exercise of the police powers of the several States.

SEC. 4. That any person, firm or corporation who shall violate sections one and two of this act shall be guilty of a misdemeanor, and upon conviction shall be fined not less than one hundred dollars nor more than five hundred dollars, or imprisoned not less than one month nor more than six months, or both, in the discretion of the court.

SEC. 5. That nothing in this act shall be construed to prohibit druggists from filling the prescriptions of physicians, nor to prohibit the shipment of any drugs or medicines to any hospital, sanitarium or other establishments wherein patients are treated, which are in charge of regularly licensed physicians, and wherein such drugs and medicines are administered to such patients under the direction of regularly licensed physicians, and not sold to the general public.

SEC. 6. That this act shall take effect and be in force from and after the first day of January, nineteen hundred and seven.

GOOD REASONS WHY BETTER LAWS ARE NEEDED.

Let any man who questions the need of better laws read carefully these pointed extracts from one of the best trade papers in the whole country, the *Druggists' Circular*:

The makers of secret remedies need no education, according to the theory of the State, to cure without a diagnosis maladies that baffle the best skill of educated medical men to cure with a diagnosis. Why this colossal injustice?

It is pitiful to think of the poor people robbing themselves of food and clothing in order to try to gain that health that their very act is pushing farther from them.

We cannot see that the proprietor of a nostrum is a being superior to an educated physician or an educated druggist. Unfortunately, he is held by the law as in some way superior, inasmuch as he is left free to distribute remedies in a wholesale and dangerous manner without the trouble of having to secure a license for himself.

There is absolutely no rational defense that can be advanced in opposition to having the label of a medicine tell its composition. There are many weighty reasons that can be advanced in defense of such a proposal. Secrecy is a respectable cloak for falsehood, extortion, and conditions that degrade. It is darkness, pure and simple, and none love it, unless their deeds require its covering.

The public buy immense quantities of proprietary medicines which, unknown to them, contain narcotics, under the delusive notion that they will cure them of some ill. They have no idea that there is the

slightest danger attached to their use. They actually do find in them some degree of comfort and a momentary support to their strained nerves. This accentuates their delusive hopes and keeps them using these drugs until they become moral and physical wrecks.

As the seller of these remedies the druggist is in part responsible—very slightly though the part may be—to the public for any untoward consequences that might result from their excessive use or from the accidental taking of an overdose, and with absolutely no knowledge of their composition he is in a sad plight when called upon to administer an antidote or restorative.

A worthy article is able to stand upon its own merits and courts the light.

Every package of a secret medicine containing a narcotic poison should carry a label bearing the word "POISON" in large, red letters with a skull and cross-bones. When druggists sell these same poisons in any other form than that of a secret medicine they are compelled to label them in this manner and take the name and address of the buyer in a poison-book. There is no reason why the pharmacists should be compelled to do this with ordinary retail sales of such goods and not be compelled to do it with nostrums.

When temperance people have succeeded in rescuing a drunkard from the thrall of strong drink how terrible is the end when some alcohol-charged secret medicine lures him back again to his old habit. Who can tell how many such relapses are due to this very cause?

The temperance war against proprietaries is not so much because they contain alcohol as because of the deception which is practiced upon the users in leading them to believe that they are not using alcohol. It is this ignorance of the taker that makes the putting of alcohol into proprietary medicines, when undeclared, a crime.

ARGUMENTS TERSELY PRESENTED.

There is wholesome truth in this statement from the Journal of the American Medical Association:

Whatever is secret is suspicious, and this axiom applies especially to medicines that are secret in character. One reason for the success of secret nostrums lies in the fact that extravagant claims are made for them, which on their face would be ridiculous in the extreme if their true composition were known. Remove the mystery surrounding these preparations and their wonderful virtues would vanish.

In a prize essay published by the Colorado State Medical Society these sound reasons why a person should not dose himself are set forth:

It would be well if all people were as slow to be dosing themselves as are physicians.

The value of medical treatment lies not so much in drugs as in the man whose training and judgment enable him to select the proper drug if one is needed.

A suffering person is not competent to select the indicated drug, and any other is sure to do harm. This is the reason physicians do not treat themselves. The sick man who does not understand drugs will do well to follow the example of the sick man who does understand them.

REVIEW OF DISEASES FOR JANUARY, 1906.

SEVENTY-NINE COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of January the following diseases have been reported from the counties named:

MEASLES.—Anson, a great many cases; Caldwell, 100; Chatham, a few; Cumberland; Duplin, many; Durham, 2; Greene, 1; Guilford, 101; Harnett, 15; Johnston, several; Lincoln, 30 or more; Mecklenburg; Montgomery, 40; Person, 3; Randolph, 20; Richmond, epidemic; Robeson, several; Rowan, 20; Scotland, a few; Stanly, many; Union, epidemic; Wake, 50 or 60; Watauga, 6; Wayne, 76; Wilkes, 5; Wilson; Yancey, several—27 counties.

WHOOPING-COUGH.—Alamance; Alleghany, 100; Burke, many; Caldwell, 40; Caswell, several; Chatham, 10; Cumberland; Duplin, many; Durham, 8; Forsyth, a few; Gates; Greene, 6; Guilford, 15; Haywood; Johnston, several; Lincoln, many; McDowell, 10; Mecklenburg; Montgomery, 20; Randolph; Robeson, several; Rowan, 25; Rutherford; Sampson, many; Stanly, many; Union, epidemic; Vance, a few; Wake, 25 or more; Wilkes, 40—29 counties.

SCARLATINA.—Brunswick, 4; Buncombe, 4; Craven, 1; Edgecombe, 2; Forsyth, a number; Guilford, 4; Person, 2—7 counties.

DIPHTHERIA.—Alamance, 1; Caldwell, 1; Craven, 1; Duplin, 1; Edgecombe, 3; Forsyth, a number; Guilford, 2; Johnston, 1; Mecklenburg; New Hanover, 5; Onslow, 2; Pitt, 4; Randolph, 6; Rowan, 1; Stanly, 2; Swain, 2; Union, 1; Wake, 1; Wilson, 1; Yancey, a few—20 counties.

TYPHOID FEVER.—Ashe, 8; Beaufort, 1; Brunswick, 2; Caldwell, 7; Chatham, 2; Cumberland; Durham, 2; Forsyth, a few; Franklin, several; Guilford, 5; Lincoln, many; McDowell, 1; Madison, 3; Mecklenburg; Montgomery, 2; New Hanover, 3; Randolph, 2; Robeson, a

few; Sampson, a few; Stanly, 3; Union, several; Wake, 4; Wilkes, 1; Yancey, a few—24 counties.

MALARIAL FEVER.—Franklin; Gates, 4; Wilson.

MALARIAL FEVER, PERNICIOUS.—Franklin, 1.

MALARIAL FEVER, HEMORRHAGIC.—Gates, 1; Wilson.

INFLUENZA.—Alamance; Alleghany; Ashe, general; Beaufort; Bertie; Bladen; Camden, general; Carteret; Caswell; Clay; Currituck; Davie, general; Graham; Greene; Hertford; Johnston; Lincoln; Macon, general; Montgomery; New Hanover; Rutherford; Sampson, general; Scotland; Warren, general—24 counties.

PNEUMONIA.—Alamance, a few; Alleghany, 6; Ashe, 60; Beaufort; Brunswick, 1; Burke; Cabarrus, 3; Camden, 5; Caswell; Catawba, 8; Chatham, 6; Clay; Cleveland, many; Davidson; Duplin, 2; Greene; Harnett; Henderson, 3; Johnston, in all parts; Lincoln, in all parts; Madison, 25; Mecklenburg; Montgomery; New Hanover; Pender, several; Person, 1; Randolph, in all parts; Rowan, 20; Scotland; Stanly, 4; Union, several; Wake, 75; Warren, several; Wayne, 2; Yadkin—35 counties.

MENINGITIS, CEREBRO-SPINAL.—Madison, 1; Stanly, 1.

MUMPS.—Caswell.

TONSILITIS.—Brunswick; Burke; Gates, 6.

SMALLPOX.—Anson, a few; Beaufort, 22; Bertie, many; Bladen, 15; Brunswick, 4; Camden; Cumberland, 106; Currituck, 13; Edgecombe, 1; Harnett, 6; Hertford, 12; Madison, 4; Mecklenburg, 9; Nash, 6; New Hanover, 26; Pasquotank, 30; Pender, several; Perquimans, 100; Pitt, 1; Robeson, 1; Sampson, 1; Union, 6; Washington, about 75—23 counties.

CHOLERA, IN HOGS.—Cherokee, epidemic; Jackson.

DISTEMPER, IN HORSES.—Burke, Jackson.

HYDROcephalus, IN DOGS.—Cherokee, epidemic.

QUINSY, IN HOGS.—Cherokee, epidemic.

No diseases reported from Granville, Iredell, Jackson, Orange, Polk and Transylvania.

No reports received from Alexander, Chowan, Columbus, Dare, Gaston, Halifax, Hyde, Jones, Lenoir, Mitchell, Moore, Northampton, Pamlico, Rockingham and Surry.

SUMMARY OF MORTUARY REPORTS FOR JANUARY, 1906.**NINETEEN TOWNS REPORTING.**

	<i>White.</i>	<i>Colored.</i>	<i>Total.</i>
Aggregate population	95,250	60,000	155,250
Aggregate deaths	96	126	222
Representing temporary annual death-rate per 1,000	12.1	25.2	17.1
CAUSES OF DEATH.			
Typhoid fever	1	2	3
Scarlet fever	2	0	2
Whooping-cough	0	1	1
Pneumonia	19	25	44
Consumption	7	16	23
Brain diseases	6	8	14
Heart diseases	9	7	16
Neurotic diseases	4	6	10
Diarrhoeal diseases	7	7	14
All other diseases.....	37	49	86
Accident	4	3	7
Violence	0	2	2
	96	126	222
Deaths under 5 years.....	20	26	46
Still-born	10	12	22

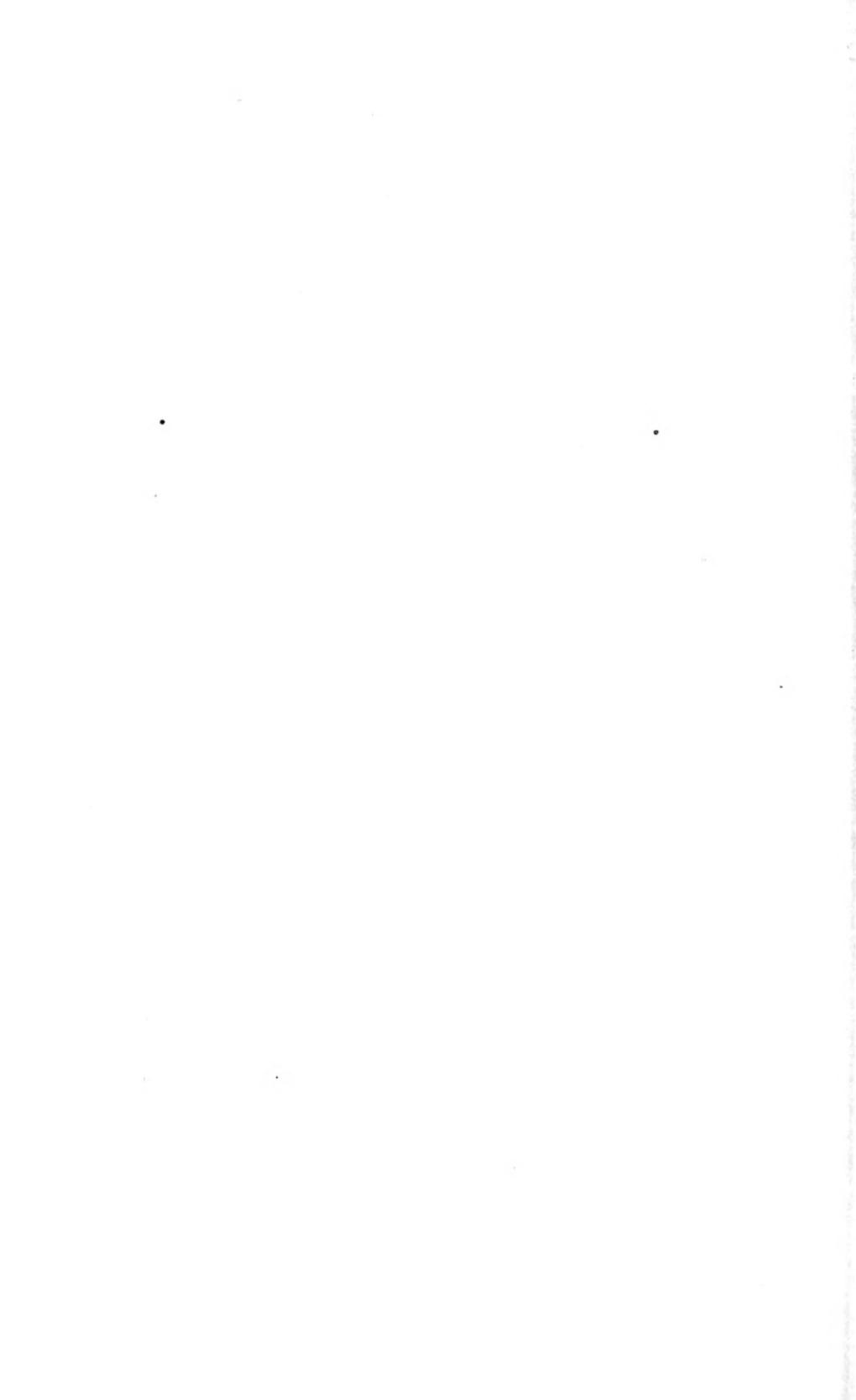
Mortuary Report for January, 1906.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.	TEMPORARY ANNUAL DEATH-RATE PER 1,000.			Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	By Races.	By Towns.	Deaths under five years.	Still-born.		
			By Races.	Total.	By Races.	Total.																					
Charlotte{ Dr. F. O. Hawley.	W. 12,000 C. 8,000	20,000	7.0 31.5	16.8																							
Durham{ Dr. T. A. Mann.	W. 12,000 C. 6,000	18,000	13.0 26.0	17.3			1	2	3	3	2	1	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Elizabeth City{ Dr. H. D. Walker.	W. 6,000 C. 4,000	10,000	4.0 27.0	13.2																							
Fayetteville{ Dr. A. S. Rose.	W. 3,500 C. 2,500	6,000	20.6 9.6	16.0																							
Greensboro{ Dr. Ed. Harrison.	W. 10,000 C. 5,000	15,000	9.6 26.4	15.2	1																						
Henderson{ Dr. G. A. Coggesshall.	W. 2,000 C. 1,800	3,800	6.0 13.3	9.5																							
Marion{ Dr. B. L. Ashworth.	W. 1,500 C. 100	1,600	8.0 0.0	7.5																							
Oxford{ Dr. S. D. Booth.	W. 1,400 C. 1,400	2,800	0.0 34.3	17.																							
Raleigh{ T. P. Sale, Clerk B. H.	W. 9,000 C. 7,000	16,000	21.3 30.9	25.5																							
Rocky Mount{ Dr. L. C. Covington.	W. 2,500 C. 1,500	4,000	0.0 16.0	6.0																							
Salem{ S. E. Butner, Supt. H.	W. 3,400 C. 400	3,800	17.6 0.0	15.8	2																						
Salisbury{ Dr. H. T. Trantham.	W. 7,400 C. 3,600	11,000	3.2 20.0	8.7																							
Southport{ Dr. J. A. Dosher.	W. 950 C. 500	1,450	0.0 24.0	8.3																							
Tarboro{ Dr. S. N. Harrell.	W. 2,500 C. 1,000	3,500	9.6 36.0	17.1																							
Wadesboro{ Dr. J. H. Bennett.	W. 1,200 C. 800	2,000	10.0 15.0	12.0																							
Washington{ Dr. John G. Blount.	W. 3,500 C. 3,000	6,500	13.7 12.0	12.9																							
Waynesville{ Dr. Thos. Stringfield.	W. 1,600 C. 400	2,000	22.5 0.0	18.0																							
Wilmington{ Dr. Chas. T. Harper.	W. 11,000 C. 10,000	21,000	24.0 31.2	27.4	1																						
Wilson{ Dr. W. S. Anderson.	W. 3,800 C. 3,000	6,800	6.3 12.0	8.8																							

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the **whole** number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. George W. Long.	Jones.....	Dr. N. G. Shaw.
Alexander	Dr. O. L. Hollar.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln	Dr. R. W. Petrie.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. L. Ashworth.
Ashe.....	Dr. Manley Blevins.	Macon	Dr. W. A. Rogers.
Beaufort	Dr. John G. Blount.	Madison	Dr. W. J. Weaver.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. E. Warren.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. Arthur Dosher.	Mitchell.....	Dr. Virgil R. Butt.
Buncombe	Dr. D. E. Sevier.	Montgomery	Dr. J. B. Shamburger.
Burke.....	Dr. J. L. Iaxton.	Moore.....	Dr. Gilbert McLeod.
Cabarrus	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. C. L. Wilson.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. C. G. Ferebee.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clarke.	Onslow.....	Dr. Cyrus Thompson.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. J. H. Taylor.	Pasquotank	Dr. J. B. Griggs.
Cherokee.....	Dr. J. A. Abernathy.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. J. M. Sullivan.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. Joseph E. Nobles.
Columbus.....	Dr. H. B. Maxwell.	Polk	Dr. C. J. Kenworthy.
Craven.....	Dr. Joseph F. Rhem.	Randolph	Dr. A. M. Bulla.
Cumberland.....	Dr. A. S. Rose.	Richmond.....	Dr. L. D. McPhail.
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Jackson.....	Dr. William Self.	Yancey	Dr. J. B. Gibbs.
Johnston	Dr. Thel Hooks.		



[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed? If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:.....

M. D.

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RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XX.

MARCH, 1906.

No. 12.

THE QUESTION OF MALARIA.

Malarial fever is one of our commonest diseases. It is undoubtedly transmitted by mosquitoes, and probably by mosquitoes only, although we find it hard, in the light of the evidence gathered and published some years ago, to abandon altogether the drinking-water theory. The bearers of the malarial poison belong to one species, the *Anopheles*. This mosquito does not travel far, rarely more than a few hundred yards, it is said. They breed in stagnant water, pools, rain-barrels, old tin cans, etc., in warm weather. There are now few in existence. Their increase can be prevented by drainage, or oiling with kerosene such water as cannot be drained every two weeks. No mosquitoes, no malaria and more comfort! Think of it! Try it this summer.

The destruction of mosquitoes is regarded as so important that a national society, the American Mosquito Extermination Society, has been organized to accomplish it. At its second annual meeting, held in New York in December, 1904, Dr. Quitman Kohnke, the distinguished health officer of New Orleans, delivered a very interesting and instructive address on the subject. We are very glad to reprint it from the proceedings of the society, regretting that we cannot include the illustrations.

THE MOSQUITO QUESTION.

BY DR. QUITMAN KOHNKE.

When we wish to admire the beautiful in Nature we are prompted to contemplate large things—landscapes, with mountains in the distance: high peaks and broad valleys; a glorious sunset, with a beautiful cloud effect. It is the large things in Nature, also, that give the impression of dignity, grandeur and importance.

As we become more familiar, however, with our surroundings we learn that the greatest wonders of God's creation and the most important factors in Nature are the small things, not the large. A snow crystal is more wonderful than an avalanche; a single drop of water, under the microscope, may be more interesting than an ocean; and a small insect, when properly viewed, may rightly appear more potent for harm to mankind than the greatest and most ferocious wild beasts.

The mosquito has been our close companion for years, but its true character was recognized only a short while ago, and very many intelligent people, well informed on other important subjects of the day, do not yet know the mosquito sufficiently to appreciate the advisability and feasibility of its destruction.

Certain purposes may best be accomplished with the aid of shot and shell, by the power of money and the force of law, but for our present purpose (the prevention of mosquitoes) no energy is greater, no influence more lasting and no law more compelling than a knowledge of the truth.

Mosquitoes can be exterminated in a free country only by the co-operation, active or passive, of the people comprising the community; and to contribute this necessary acquiescence and assistance they must first understand what is to be done, and why. If every man, woman and child in this country understood the mosquito, there would be no need for such a society as ours, but legislative bodies would act in response to the general demand, and concerted effort would soon accomplish with ease what, because of lack of appreciation, promises to be a difficult and tedious task.

The study of the mosquito is primarily the province of the entomologist, not the physician, but the physician is compelled to study, to some extent at least, the nature of insects which convey disease, so that he may advise how to prevent the occurrence of diseases thus conveyed.

Do not expect me to speak learnedly about the mosquito from an entomological point of view, or you will be disappointed, for I am not an entomologist, and I desire to make no such pretension.

As a physician, however, occupied mainly in the practice of preventive medicine, I have learned some things about some mosquitoes;

and I want to engage your intelligent interest in the subject by presenting to your consideration some important facts in as entertaining a manner as I can command.

The popular notion that mosquitoes exist only in warm climates is erroneous. There are published accounts of serious discomfort experienced by Arctic explorers because of mosquitoes, and well-informed travelers to Alaska include in their preparations provision against the mosquito pest.

As evidence of the insect's importance in olden times, we are told that Sapor, a King of Persia, was compelled to raise the siege of Nisibis by a plague of gnats, which attacked his elephants and beasts of burden, and so caused the rout of his army. A mosquito is a kind of gnat, and it is not impossible that the insect which routed the Persian army was of a kind to be found with us.

To consider every variety of mosquito would be useless, tiresome and disturbing to the proper understanding of the subject. Many varieties exist and all are not yet discovered. Thirty-two kinds are found in Louisiana alone.

There was a time in my youth, which I have not yet forgotten, when there were only two kinds of mosquitoes; one kind were gallinippers, and the other kind were not. The mosquitoes were there all right, but no special reason existed outside of the province of entomology for their differentiation.

Not so to-day. The mosquito is such an important factor for harm that no person who desires to be well informed can afford to neglect the subject.

I propose this evening to divide mosquitoes in general into three distinctive kinds, and select for consideration a typical one of each kind.

A practical understanding of the mosquito question does not require previous study in entomology, bacteriology or medicine; and there is no reason why an intelligent person should not fully appreciate how and why mosquitoes are destroyed.

I propose to show you pictures of the *Culex* or gutter mosquito, the *Anopheles* or swamp mosquito, and the *Stegomyia* or eastern mosquito. These are all mosquitoes, as all adult males of the human family are men, but the difference between these kinds of mosquitoes is as great and important as that between the white man, the black man and the red man—greater, even, and more important.

Culex pungens prefers the gutter, and may be likened to the sparrow among birds; it is noisy and numerous, and always hungry.

The male insect, you will observe, presents a rather bushy headress, by which it may be easily distinguished from the plainer but more dangerous female. Male mosquitoes are not blood suckers, but vegetarians, for the reason that the male insect cannot pierce the skin, and must therefore subsist on food more easily obtained.

The feeding organ of the mosquito, called the proboscis, is composed of seven parts, which together form the organ by means of which the blood is reached and through which it is obtained.

In the male insect the stylet or piercing instrument is adherent to the neighboring parts and cannot move sufficiently to pierce the skin. If you will observe, during the watermelon season, the mosquitoes that feed on the fruit, you will notice that almost all are males.

The female insect is plain as compared with the male. The palpi, those projections on either side of the central proboscis, are much shorter in the female; and the organs to the outer side, the antennæ, are not as beautifully bushy. The female of the *Culex* is very annoying, but does not transmit disease, so far as is known, and in this country, though it is suspected of conveying dengue fever. In eastern tropical countries a species of the *Culex* is connected with the disease known as elephantiasis.

The *Anopheles* is the spotted-winged swamp mosquito, responsible for malaria in the human. A peculiarity of this mosquito is its long, thin legs, and the dark spots on the wings are characteristic.

The same general difference in the head-dress of the sexes obtains, save that the palpi are about equally long in both, as may be seen by comparing the pictures.

The *Stegomyia* is for the South by far the most important mosquito, not because it is most numerous, but because it is the natural conveyor of yellow fever.

It has been called the tiger mosquito because of its striped appearance. It is a most beautifully-marked mosquito and very dainty. It is essentially a domestic insect, and is found only in inhabited localities.

It is a day mosquito, and resting on a dark background, such as a black coat or dress, presents a particularly striking appearance; the white bands on the legs and the peculiar marking of the back easily distinguishing it from any other.

You will have observed that the antennæ of all male mosquitoes are more hairy than those of the female. Some of these hairs, it has been discovered, respond to sound by a vibratory motion: they are, therefore, auditory. These are the ears of the insect, and the male flies to the female guided by her song, adjusting the direction of his flight by turning his head until both antennæ are equally affected, when the object of his search is directly in front.

The song of the insect, we are told, is not produced solely by the buzzing of its wings, but also by the vibration of a peculiarly constructed "chitinous process" situated near the breathing apertures (which, by the way, are along the sides of the insect), and set in motion by respiration.

This is the famous yellow-fever mosquito, which has been the greatest and most persistent enemy the South has ever had, costing many thousands of lives and many millions of dollars, but which is at last,

happily, conquered, if we but use the weapons that have been put in our hands by the patient searchers for truth in the field of science.

Mosquitoes cling to surfaces as a cat clings to the bark of a tree. A mosquito cannot rest on a perfectly smooth, perpendicular surface; a fly can. A fly's foot is a sucker; a mosquito's foot is a claw. Mosquitoes resting upon window-panes would seem to deny this, but a window-pane, very shortly after a thorough cleaning, may collect enough moisture and dust to form a film over the glass, sufficient, though invisible, to afford a firm hold for the insect.

The resting position of *Anopheles* is peculiar in that the head, body and tail present a straight line, at an angle with the resting surface, while in the *Culex* and *Stegomyia* the body is bent, as you observe in the picture.

The wings of mosquitoes present important differences in their markings which easily distinguish them from each other. The wing of *Culex* is not very different, except to the entomologist, from that of the *Stegomyia*; while that of *Anopheles* is spotted.

The fringe of the insect's wing (not distinctly visible except under the microscope) is made up of the most beautifully arranged series of feather-like scales, each one, as well as the wing as a whole, reflecting most brilliantly iridescent colors.

Having discussed the full-grown mosquito, let us next consider its origin and how it may be destroyed.

Eggs of *Culex pungens*, the gutter mosquito, are cone-shaped, and float on end, being glued together in large masses to maintain this position in the water. The number deposited by a single mosquito varies from fifty to four hundred, and they hatch in from one to three days, varying according to temperature and environment. When a sufficient time has elapsed to complete the hatching process the larva or wiggle-tail issues from the shell and begins to feed on the vegetable and animal matter contained in the water.

In its growth the larva sheds its skin several times before the pupal stage is reached—in from seven to ten days.

The pupal stage in mosquito life corresponds to that of the chrysalis in the transition of a caterpillar into a butterfly.

The pupa does not feed. In about two days it becomes an imago, which is the technical name for the completed insect, whose life begins with the ovum or egg.

The shell of the pupa breaks at its highest point and the completed mosquito issues, being supported by the floating shell until its wings spread for flight.

The kind of mosquito that issues from the shell of the pupa depends of course on the kind of egg which has been deposited and hatched in the water.

The life cycle of *Culex*, the gutter mosquito, is from ten to fifteen days. Do not mistake the life cycle for the length of life; mosquitoes

may live as adult insects for many months, and some females must hibernate through the winter to furnish eggs for the next summer's supply.

Eggs of *Anopheles*, the swamp mosquito, are boat-shaped and float singly on the surface of stagnant pools. They are deposited in numbers between forty and a hundred. The bottom of the floating egg is marked somewhat like mosquito netting, the pattern being raised. The top of the egg is smooth, black in color and partly covered by a transparent membrane which stands out from the surface of the top and sides, permitting an intervening space of air which floats the egg like a life-boat. The egg hatches in from three to four days.

The larva of *Anopheles* may be distinguished by its position at the surface of the water, as well as by its general appearance, differing from that of either *Culex* or *Stegomyia*. You will observe that the neck of the *Anopheles* larva is very slender, and that the head is turned upon the body. This is because the *Anopheles* larva finds its food on the surface, and gathers it by the constant motion of little broom-like processes projecting from the sides of the mouth, and furnished for this purpose.

The breathing-tube, you will observe, projects from the back or upper surface of the larva, near the tail end. To get its mouth to the surface while maintaining its position for breathing requires that the head should be turned half around on the body, an impossible position to any but the thin-necked *Anopheles* larva.

The larva becomes a pupa in about twelve days. In about five days the pupa is a full-grown mosquito.

Eggs of *Stegomyia*, the yellow-fever mosquito, float singly upon the surface of the water, and are deposited in numbers varying from five to seventy-five.

They hatch in from ten hours to three days, according to climatic and other conditions. The shell is marked like mosquito netting, the white-pattern being raised and somewhat similar to that of the *Anopheles* egg, and on the sides are air-chambers, which float it.

The larva is very similar in appearance to that of the *Culex*, and its position in the water is also similar to *Culex* and unlike *Anopheles*. In about six days the pupa develops, and in a day or two the mosquito begins its flight.

You have observed that the larvae of all mosquitoes have a breathing-tube near the end of the tail, and that the pupae have a pair of breathing-tubes projecting from the body near the head.

The insect, both in the larval and the pupal stage, requires air, to obtain which the breathing-tubes must at frequent intervals protrude from the water surface into the air above.

The life cycle of mosquitoes varies, as to duration of the formative periods, according to conditions favoring rapid development; and no hard and fast rules can be laid down as absolute in this regard. It

may be said, however, that the cistern mosquito breeds, approximately, in one week, the gutter mosquito in two weeks, and the swamp mosquito in three weeks.

Some years ago it was claimed by some one that permanganate of potash in water would kill wigglers; it evidently does not affect them, however, even in quantity enough to reddens the water. You will see how promptly the wigglers die of suffocation when air is cut off by pouring oil on the water surface. It is estimated that about two tablespoonfuls of kerosene (ordinary illuminating oil) will spread and film the water surface of an average cistern, and the oil will positively not affect the potability or taste of drinking water. The placing of oil upon drinking water for the destruction of mosquitoes is not a new idea, for it was suggested as early as 1812, and has been practiced for many years.

NOW DO MOSQUITOES TRANSMIT DISEASE?—MALARIAL FEVER.

That malaria is a germ disease no well-informed person disputes. Even those who deny that the germ is conveyed by mosquitoes admit that it is found in the blood of its victims. There are both animal and vegetable germs of disease. The germs of tuberculosis and diphtheria are vegetable; those of malaria and yellow fever are animal. The malarial germ is called a plasmodium.

The germ once inside of the blood cell multiplies as the cell contents are destroyed, and here we see a multiplication of germs by segmentation within the blood cell.

The next step in germ growth is the bursting of the cell membrane and the liberation of the germs, which in turn seek new cells and go through the same process of multiplication and blood-destruction, eventually causing malarial anaemia and the many other symptoms, acute and chronic, of this infection.

The discovery that malaria is conveyed by a certain kind of mosquito was not made in a day, and the belief in the correctness of the mosquito transmission of the disease does not depend on a superficial consideration only. Each link in the chain of evidence has been carefully examined, and the conclusion is firmly based on ascertained facts.

That malaria may be acquired in some other way is still held by some physicians, but these are growing fewer in number as the subject is further investigated.

The malaria germ in the human blood multiplies by segmentation, and when drawn into a mosquito of the *Anopheles* variety undergoes certain changes of character and form as a sexual animal. Under the microscope the changes have been observed and studied, and are now fairly well understood.

Some of the germs taken in with the blood are digested in the stomach of the insect, but others enter the stomach walls and break

through. These germs make their way through the intervening tissues to the salivary glands of the insect, from which they are injected into the blood of the human victim, to again undergo a sexual multiplication.

I have prepared a diagram section of a mosquito to show how the germs may be sucked in with the blood of a malarial subject and how they may be introduced into the blood of another victim along with the saliva and poison, which mosquitoes inject for the purpose, it is thought, of rendering the blood thinner and more easily obtained.

The proofs that malaria is transmitted by the *Anopheles* mosquito are abundant and conclusive.

Aside from microscopic findings in the blood of the mosquito and of malarial patients, practical experimentation has been repeatedly appealed to for confirmation, and never without positive results. As an example of the kind of evidence obtained in this way may be cited the experiments in the Roman Campagna, where malarial infection is extensive and virulent. Here was constructed in one of the most malarious portions of the swamp land a small house, thoroughly wire-screened against mosquitoes. The house was occupied by a number of people whose movements were not restricted, save that they entered the house every evening at sundown and remained inside until daylight (the malaria mosquitoes bite at night). The supposedly dangerous night air was admitted freely, and, during the rainy season, the experimenters purposely got soaked to the skin. None, however, contracted malaria, whilst their neighbors who were not protected from mosquitoes suffered severely.

Again: To prove that *Anopheles* are capable of transmitting malaria, infected mosquitoes were sent to London from Rome, and one of the insects was permitted to bite the subject of experiment. Symptoms of the disease followed the inoculation in due time, and a case of malaria occurred in a person who was not living in a malarious country and had not visited a malarious region since childhood. The germs of malaria were transmitted, in a mosquito, from Rome to London.

YELLOW FEVER.

The method of infection in yellow fever is very similar to that of malarial infection, with important differences, however, as to details.

The belief that the disease is conveyed by the female of the mosquito known as the *Stegomyia fasciata* also rests on experiments and observations, equally as conclusive as those relating to malaria and the *Anopheles*.

Dr. Carroll, one of the investigators for this government in Cuba, says:

"Natural yellow fever is transmitted by the mosquito, and always and only by the mosquito."

You may be sure that such a positive statement was not made until after the most searching investigation, carefully guarded against error.

According to the old belief yellow fever was conveyed in much the same manner as scarlatina, diphtheria and smallpox, that is, by personal contact or contact with articles infected by the sick. These infected articles are called fomites, and, with regard to yellow fever, this term included everything supposed to carry infection. Some quarantine authorities included in this class pig-iron and stone-ballast from infected localities.

The government experiments in Cuba demonstrated the harmlessness of fomites by the placing of three young American men for twenty consecutive nights in a room to sleep upon and under bed clothes soiled by previous use in the yellow-fever hospital. The room was kept moist and warm and garnished with articles taken from fatal cases of yellow fever. Contact was as intimate as possible with these supposedly infected articles, but mosquitoes were excluded, and no one got sick. The experiment was repeatedly made with the same result.

Subsequently four out of seven of the persons experimented upon were infected by means of the mosquito. A room was prepared to exclude all possibility of infection by fomites, and infection by mosquitoes promptly followed inoculation.

Yellow fever is conveyed by the *Stegomyia fasciata* mosquito, but the germs of the disease may be taken by the mosquito only during the first three or four days of the fever; after that time the blood of the patient cannot infect the mosquito. The germs require about twelve days to migrate from the stomach of the insect to the salivary glands, from which they may be injected through the mosquito's biting organ into the human blood stream. Mosquitoes, after becoming infectious, are capable of inoculating the disease into the human at intervals of three days (period of feeding) for practically an indefinite time.

The adaptation of protective measures to this important discovery renders the prevention or suppression of an epidemic very simple, theoretically. Screening the patient from mosquitoes during the first four days of fever (before the diagnosis), or killing all mosquitoes in the room before the twelfth day after their possible infection, will certainly prevent a second case. It is seldom possible in practice, however, to attain the high degree of perfection which theory so often demands.

It is practically impossible to screen from mosquitoes every case of fever that might be yellow fever, and it is impossible also to be certain of the destruction of all mosquitoes that may have been infected from mild and unrecognized cases of the disease.

The destruction of all mosquitoes in vehicles of transportation—for freight as well as passengers—from possibly infected localities is far

more likely to be complete and effective, and the extermination of the *Stegomyia* mosquitoes in infectable localities would be much easier and less costly than the screening of all fever cases and the destruction of all mosquitoes possibly infected therefrom.

Dr. Stanford E. Chaillé of New Orleans, in a clear and logically convincing presentation of the subject to a meeting of the American Medical Association, concludes that "Boards of health, should they neglect any practicable measure of warfare against the *Stegomyia*, would deserve the severest punishment of the worst criminals."

The doctor does not say what should be done to legislative bodies who reject the reasonable suggestions of boards of health on the destruction of mosquitoes.

For the permanent eradication of the mosquito plague the commencement has been made in New Orleans by the construction of our drainage and sewerage systems. The total abolition of cisterns will no doubt follow as soon as our city is furnished with the necessary supply of good and pure water by means of an efficient water-works system.

The fear of yellow fever and the desire to prevent its recurrence brought about the inauguration of our Sewerage and Water Board in 1899, and a tax levy of about fourteen million dollars. The mosquito transmission of yellow fever has since been recognized, and we know now that to prevent yellow fever the destruction of mosquitoes is far more important than the getting rid of filth, and that the Sewerage and Water Board, whatever else it accomplishes, will not begin to effect the determining purposes of its inauguration—protection against yellow fever—until it furnishes a good water supply, thereby permitting us to destroy our cisterns. Meanwhile, until our cisterns are destroyed or screened, we must depend on quarantine. This, with the important coöperation of the United States Health and Marine Hospital Service, has protected us, and will doubtless continue to do so.

In quarantine measures against yellow fever, destruction of mosquitoes is exceedingly important, being second only to the detention for five days after exposure of those who are not immune.

These two essentials are indeed the only effective quarantine measures against the disease; all else is useless and unnecessary.

"Just to be on the safe side," however, quarantine authorities will doubtless continue for a while the unnecessary along with the essential.

Those who consider the mosquito the sole vehicle of conveyance for malaria and yellow fever must wait patiently until time, study and experience effect a change of mind in those who are not yet ready to discard the opinions held in respect for so many years.

Each day, almost, adds to the evidence, and the time is near when it may be said, with confidence, that an epidemic of yellow fever and the prevalence of malaria are not visitations of providence, but proofs

rather of man's stubborn unwillingness to use the God-given power of intelligent thought in the exercise of his privilege to obey nature's first law—self-protection.

REVIEW OF DISEASES FOR FEBRUARY, 1906.

EIGHTY-THREE COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of February the following diseases have been reported from the counties named:

MEASLES.—Anson, many cases; Bladen, many; Caldwell, 33; Catawba, a great many; Chatham, 4; Cumberland; Davidson, many; Davie, many; Forsyth, a few; Gates; Granville, 4; Guilford, 81; Harnett, 40; Henderson, many; Iredell, 6; Johnston, several; Lincoln, 100; Mecklenburg; Montgomery, 18; Randolph, 10; Richmond, epidemic; Robeson, epidemic; Rockingham; Rowan, many; Scotland; Surry, 25; Union, epidemic; Vance, a few; Wake, 21; Watanya, a few; Yancey, a few—31 counties.

WHOOPING-COUGH.—Alamance; Alleghany, in all parts; Ashe, 40; Bladen, a few; Burke, in all parts; Caldwell, 33; Catawba, a great many; Chatham, 50; Chowan, 2; Cleveland, many; Cumberland; Currituck, 6; Davidson; Duplin, 10; Durham, 19; Forsyth, many; Gates; Guilford, 12; Harnett, several; Iredell, 12; Johnston, several; Lincoln, many; McDowell, 10; Madison, 4; Mecklenburg; Montgomery, 22; Onslow, 1; Person; Randolph, 20; Rowan, many; Sampson, a great many; Stanly, epidemic; Transylvania, a few; Union, many; Wake, 10; Wilkes, 10—36 counties.

SCARLATINA.—Ashe, 8; Caldwell, *2; Catawba, 1; Edgecombe, 1; Forsyth, a few; Iredell, 1; Mecklenburg; Rowan, 1—8 counties.

DIPHTHERIA.—Alleghany, 3; Cabarrus, 1; Caldwell, 1; Catawba, 1; Craven, 3; Cumberland, 1; Forsyth, a few; Guilford, 1; Henderson, 1; Macon, 3; Mecklenburg; New Hanover; Randolph, 1; Rockingham; Rutherford, 1; Surry, 1; Union, 2; Wake, 3—18 counties.

TYPHOID FEVER.—Alleghany, 1; Ashe, 6; Caldwell, 6; Chatham, 2; Clay, 1; Currituck, 1; Durham, 2; Franklin, a few; Guilford, 1; Harnett, several; Lincoln, 2; Montgomery, 5; New Hanover, 2; Richmond.

1; Robeson, a few; Rockingham; Rowan, 4; Sampson, a few; Stanly, a few; Union, many; Wake, 8; Wilkes, 2; Yancey, 2—23 counties.

MALARIAL FEVER.—Currituck, a few; Franklin; Harnett; Hyde; Onslow; Wake; Wilson—7 counties.

MALARIAL FEVER, PERNICIOUS.—Franklin, 1; Harnett, several; Hyde, 1; Wilson, 1.

MALARIAL FEVER, HEMORRHAGIC.—Onslow, 1; Wake, 1.

MUMPS.—Onslow; Warren, in all parts.

CEREBRO-SPINAL MENINGITIS.—Chatham, 1; Martin, 1.

INFLUENZA.—Brunswick; Camden, general; Carteret; Chatham; Clay; Cumberland; Currituck; Dare; Gates, general; Graham, general; Hertford; Lincoln, general; Macon; New Hanover, general; Northampton; Robeson, general; Rockingham; Rowan; Sampson; Stanly; Warren, general; Wilkes, general; Yadkin—22 counties.

PNEUMONIA.—Alamance; Alleghany, 1; Ashe, 15; Burke, 10; Cabarrus, 11; Camden, 6; Catawba, 6; Chatham, 15; Cherokee, a few; Chowan, 7; Cumberland, many; Davidson; Duplin, 5; Durham, 12; Gaston, a great many; Henderson, 3; Hyde, 6; Johnston, in all parts; Lincoln, in all parts; Martin, 4; Mecklenburg; Northampton; Onslow; Orange, several; Pender, several; Person, a few; Rowan; Rutherford, several; Union, many; Wake, 82; Warren, 15; Watauga, a few; Wayne, 2; Wilson, 2; Yadkin; Yancey, several—36 counties.

DYSENTERY.—Currituck.

RÖTHELN.—Craven, a few.

VARICELLA.—Warren, in all parts.

SMALLPOX.—Anson, 5; Bertie, a few; Bladen, 1; Buncombe, 2; Catawba, 1; Chowan, 15; Cumberland, 34; Currituck, 12; Dare, 4; Davidson, 2; Duplin, 1; Edgecombe, 7; Gates, several; Guilford, 1; Harnett, 7; Hyde, 50; Macon, 3; Madison, 6; Martin, 8; Mecklenburg, 6; Nash, 11; New Hanover, 11; Northampton, 2; Onslow, 1; Pasquotank, 13; Pender, several; Pitt, 1; Polk, 2; Robeson, 3; Sampson, 2; Union, 5; Wayne, 2—32 counties.

CHOLERA, IN HOGS.—Chowan, Hertford, Jackson.

DISTEMPER, IN HORSES.—Alleghany, Ashe, Burke, Gaston and Hertford—5 counties.

QUINSY, IN HOGS.—Cherokee.

No diseases reported from Haywood, Jackson, Surry and Swain.

No reports received from Alexander, Beaufort, Caswell, Columbus, Greene, Halifax, Jones, Lenoir, Mitchell, Moore, Pamlico, Perquimans and Washington.

SUMMARY OF MORTUARY REPORTS FOR FEBRUARY, 1906.

TWENTY-THREE TOWNS REPORTING.

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population	105,400	67,250	172,650
Aggregate deaths	116	127	243
Representing annual death-rate per 1,000... .	13.2	22.7	16.9
<i>Causes of Death.</i>			
Malarial fever	1	1	2
Whooping-cough	2	4	6
Measles	0	2	2
Pneumonia	17	25	42
Consumption	9	29	38
Brain diseases	11	9	20
Heart diseases	14	8	22
Neurotic diseases	4	3	7
Diarrhoeal diseases	7	2	9
All other diseases.....	43	37	80
Accident	7	6	13
Suicide	1	0	1
Violence	0	1	1
	116	127	243
Deaths under five years.....	21	33	57
Still-born	9	15	24

Mortuary Report for February, 1906.

TOWNS AND REPORTERS.	POPULA- TION.	RACES.			TEMPORARY ANNUAL DEATH- RATE PER 1,000.			Deaths under five years.																	
		By Races.	Total.	By Races.	Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	By Towns.	DEATHS.	TOTAL	
Charlotte	W. 12,000	20,000	10.0	16.8	.....	.....	.....	.....	.....	2 2	2 4	.....	10 28	4 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. F. O. Hawley.	C. 8,000	27.0	.....	.....	.....	5 1	1 1	.....	.....	8 2	.....	18	5 5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Durham	W. 12,000	18,000	17.0	21.3	.....	1 4	3	3	2	4	.....	.....	17	32	1 2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. T. A. Mann.	C. 6,000	30.0	.....	.....	3 1	4	1	1	1	3 2	.....	15	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eduenton	W. 1,500	4,000	16.0	9.0	.....	.....	1	.....	.....	1	.....	.....	1	.....	2 3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. Thomas J. Hoskins	C. 2,500	4.8	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Elizabeth City	W. 6,000	10,000	10.0	16.8	1	2	1	1	1	1	5	14	4 2
Dr. H. D. Walker.	C. 4,000	27.0	.....	.....	1 3	1	1	1	1	4	.....	9	14	4 2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fayetteville	W. 3,500	6,000	17.1	18.0	2	1	1	1	1	1	1	1	4 9	2
Dr. A. S. Rose.	C. 2,500	19.2	.....	.....	1 1	1	1	1	1	1	1	1	1	4	9	3	.....	.....	.....	.....	.....	.....	.....	.....
Goldsboro	W. 5,000	8,000	16.8	21.0	.....	1	1	1	1	4	.....	7	14	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Robt. A. Creech, H. O.	C. 3,000	28.0	.....	.....	2 2	2	2	2	2	1	2	2	2	7	14	2 2	.....	.....	.....	.....	.....	.....	.....	.....
Greensboro	W. 10,000	15,000	15.6	20.8	.....	1	2	1	1	4	5	.....	13	26	4 4	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dr. Edward Harrison.	C. 5,000	31.2	.....	.....	1 2	3	4	2	1	1	1	1	13	26	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Henderson	W. 2,000	4,200	6.0	8.6	.....	1	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	3	2
Dr. G. A. Coggeshall.	C. 2,200	10.9	.....	.....	1	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Lexington	W. 3,000	3,600	8.0	6.7	.....	.....	.....	.....	.....	2	.....	2	.....	2	2	1	.....	0	0	.....	.....	.....	.....	.....
John H. Moyer, Mayor	C. 600	0.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marion	W. 1,500	1,600	8.0	7.5	.....	.....	1	.....	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. B. L. Ashworth.	C. 100	0.0	.....	.....	1	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Oxford	W. 1,400	2,800	0.0	4.3	.....	.....	1	.....	1	.....	1	.....	0	1	1	1	1	1	1	1	1	1	1	1
Dr. S. D. Booth.	C. 1,400	8.6	.....	.....	1	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Raleigh	W. 9,000	16,000	14.7	18.0	.....	4	1	1	1	6	.....	11	24	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
T. P. Sale, Clerk B. H.	C. 7,000	22.3	.....	.....	2 2	2	2	2	2	4	.....	11	13	1 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rocky Mount	W. 2,500	4,000	14.4	9.0	.....	1	.....	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1
Dr. L. C. Covington.	C. 1,500	0.0	.....	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Salem	W. 3,400	3,800	21.2	18.9	.....	1	.....	2	1	2	1	1	1	6	6	1	1	1	1	1	1	1	1	1
S. E. Butner, Supt. H.	C. 400	0.0	.....	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Salisbury	W. 7,400	11,000	8.1	12.0	.....	1	1	1	1	1	.....	5	11	11	1	1	1	1	1	1	1	1	1	1
Dr. H. T. Trantham.	C. 3,600	20.0	.....	.....	3 2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Southport	W. 900	1,400	0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	0	0	0	0	0	0	0	0	0	0	0	0
Dr. J. A. Bosher.	C. 500	0.0	.....	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Tarboro	W. 2,500	3,500	4.8	6.8	.....	1	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. S. N. Harrell.	C. 1,000	12.0	.....	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Wadesboro	W. 1,200	2,000	10.0	12.0	.....	1	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dr. J. H. Bennett.	C. 800	15.0	.....	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Washington	W. 3,500	6,500	13.7	25.8	.....	1	2	1	1	2	1	1	1	4	14	1	.....	.....	.....	.....	.....	.....	.....	.....
Dr. John G. Blount.	C. 3,000	40.0	.....	.....	2 3	2	1	1	2	1	1	1	1	10	14	3	.....	.....	.....	.....	.....	.....	.....	.....
Waynesville	W. 1,600	2,000	0.0	0.0	.....	.....	.....	.....	.....	.....	.....	.....	0	0	0	0	0	0	0	0	0	0	0	0
Dr. Thomas Stringfield.	C. 400	0.0	.....	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Weldon	W. 700	1,450	51.4	33.1	.....	1	.....	2	1	1	1	1	1	1	3	4	1	1	1	1	1	1	1	1
J. T. Gooch, Mayor.	C. 750	16.0	.....	.....	1	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Wilmington	W. 11,000	21,000	16.4	21.7	1	1	1	2	1	1	1	1	1	15	38	1
Dr. Charles T. Harper.	C. 10,000	27.6	.....	.....	3 5	1	2	2	2	7	2	2	2	2	23	1	5	1	5	1	5	1	5	1
Wilson	W. 3,800	6,800	12.6	10.6	.....	1	.....	1	1	1	1	1	1	1	4	6	2	1	1	1	1	1	1	1
Dr. W. S. Anderson.	C. 3,000	8.0	.....	.....	1	.....	1	1	1	1	1	1	1	1	2	6	2	1	1	1	1	1	1	1

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. George W. Long.	Jones.....	Dr. N. G. Shaw.
Alexander	Dr. O. L. Hollar.	Lenoir	Dr. C. L. Pridgen.
Alleghany	Dr. Robt. Thompson.	Lincoln.....	Dr. R. W. Petrie.
Anson	Dr. J. H. Bennett.	McDowell	Dr. B. L. Ashworth.
Ashe	Dr. Manley Blevins.	Macon	Dr. W. A. Rogers.
Beaufort	Dr. John G. Blount.	Madison	Dr. W. J. Weaver.
Bertie	Dr. H. V. Dunstan.	Martin.....	Dr. W. E. Warren.
Bladen.....	Dr. L. B. Evans.	Mecklenburg.....	Dr. C. S. McLaughlin.
Brunswick	Dr. J. Arthur Dosher.	Mitchell.....	Dr. Virgil R. Butt.
Buncombe	Dr. D. E. Sevier.	Montgomery	Dr. J. B. Shamburger.
Burke.....	Dr. J. L. Laxton.	Moore.....	Dr. Gilbert McLeod
Cabarrus.....	Dr. R. S. Young.	Nash	Dr. J. P. Battle.
Caldwell	Dr. C. L. Wilson.	New Hanover	Dr. W. D. McMillan.
Camden.....	Dr. C. G. Ferebee.	Northampton.....	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clarke.	Onslow.....	Dr. Cyrus Thompson.
Caswell	Dr. S. A. Malloy.	Orange.....	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico.....	Dr. H. P. Underhill.
Chatham.....	Dr. J. H. Taylor.	Pasquotank	Dr. J. B. Griggs.
Cherokee.....	Dr. J. A. Abernathy.	Pender.....	Dr. R. J. Williams.
Chowan.....	Dr. T. J. Hoskins.	Perquimans.....	Dr. C. C. Winslow.
Clay	Dr. J. M. Sullivan.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt.....	Dr. Joseph E. Nobles.
Columbus.....	Dr. H. B. Maxwell.	Polk	Dr. C. J. Kenworthy.
Craven.....	Dr. Joseph F. Rhem.	Randolph	Dr. A. M. Bulla.
Cumberland.....	Dr. A. S. Rose.	Richmond.....	Dr. L. D. McPhail.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan.....	Dr. J. S. Brown.
Davie	Dr. M. D. Kimbrough.	Rutherford.....	Dr. E. B. Harris.
Duplin	Dr. A. J. Jones.	Sampson	Dr. J. O. Matthews.
Durham	Dr. T. A. Mann.	Scotland	Dr. A. W. Hamer.
Edgecombe	Dr. S. N. Harrell.	Stanly.....	Dr. J. N. Anderson.
Forsyth.....	Dr. S. F. Pfohl.	Stokes	
Franklin	Dr. R. F. Yarborough.	Surry	Dr. John R. Waltz.
Gaston.....	Dr. L. N. Glenn.	Swain.....	Dr. R. L. Davis.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. C. W. Hunt.
Graham	Dr. M. T. Maxwell.	Tyrrell.....	
Granville	Dr. S. D. Booth.	Union	Dr. Henry D. Stewart.
Greene.....	Dr. W. B. Murphy.	Vance.....	Dr. John Hill Tucker.
Guilford.....	Dr. Edmund Harrison.	Wake.....	Dr. J. W. McGee, Jr.
Halifax	Dr. I. E. Green.	Warren.....	Dr. P. J. Maeon.
Harnett.....	Dr. L. J. Arnold.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. R. McCracken.	Watanga.....	Dr. H. McD. Little.
Henderson	Dr. J. G. Waldrop.	Wayne.....	Dr. J. B. Outlaw.
Hertford	Dr. C. F. Griffin.	Wilkes.....	Dr. John Q. Myers.
Hyde.....	Dr. E. H. Jones.	Wilson.....	Dr. W. S. Anderson.
Iredell	Dr. M. R. Adams.	Yadkin	Dr. M. A. Royall.
Jackson.....	Dr. William Self.	Yancey	Dr. J. B. Gibbs.
Johnston	Dr. Thel Hooks.		

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HEALTH AND HUMAN SERVICES



